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NAVAL POSTGRADUATE SCHOOL

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MBA PROFESSIONAL REPORT

Mine Clearance Industry:
Background, Geography, Funding, Analysis and Future Projections

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By: **Erkan DÖNMEZ**
December 2007

Advisors: **Nicholas Dew,**
Bryan Hudgens

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Contrary to common belief, the problems caused by landmines or other counter mobility devices have been threatening the lives of human beings for thousands of years. However, the actual efforts to remove the buried mines are a comparatively new issue.

The mine clearance industry has been growing steadily, mostly because of increasing demand from the mine-afflicted countries, NGOs, International organizations and the wealthy donor countries having financial resources to attract the growing industry.

The imbalance between the supply and the demand, and the financial constraints of mine-afflicted countries, NGOs, and international organizations make the efforts much more difficult to deal with. Due to these challenges faced by the stakeholders, a thorough review of the current system and prevalent shortfalls needs to be addressed.

This study tries to cover the background of the problem, geography of the mine contamination, funding mechanisms, dynamics of the organizations dealing with the problem, efforts to achieve a mine-free world and recommendations for solution of the problem in the future. The mine clearance industry has also been thoroughly analyzed by using Porter's "Five Forces Analysis," considering the governments of mine-afflicted countries, NGOs, International organizations, commercial clearance firms and the donor countries having financial resources.

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MINE CLEARANCE INDUSTRY: BACKGROUND, GEOGRAPHY, FUNDING, ANALYSIS AND FUTURE PROJECTIONS

Erkan Dönmez, Captain, Turkish Army

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

from the

NAVAL POSTGRADUATE SCHOOL
December 2007

Author: _____
Erkan Dönmez

Approved by: _____
Nicholas Dew, Lead Advisor

_____
Bryan Hudgens, Support Advisor

_____
Robert N. Beck, Dean
Graduate School of Business and Public Policy

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MINE CLEARANCE INDUSTRY: BACKGROUND, GEOGRAPHY, FUNDING, ANALYSIS AND FUTURE PROJECTIONS

ABSTRACT

Contrary to common belief, the problems caused by landmines or other counter mobility devices have been threatening the lives of human beings for thousands of years. However, the actual efforts to remove the buried mines are a comparatively new issue.

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The imbalance between the supply and the demand, and the financial constraints of mine-afflicted countries, NGOs, and international organizations make the efforts much more difficult to deal with. Due to these challenges faced by the stakeholders, a thorough review of the current system and prevalent shortfalls needs to be addressed.

This study tries to cover the background of the problem, geography of the mine contamination, funding mechanisms, dynamics of the organizations dealing with the problem, efforts to achieve a mine-free world and recommendations for solution of the problem in the future. The mine clearance industry has also been thoroughly analyzed by using Porter's "Five Forces Analysis," considering the governments of mine-afflicted countries, NGOs, International organizations, commercial clearance firms, and the donor countries having financial resources.

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EXECUTIVE SUMMARY

Contrary to popular belief, the use of mines did not begin for military purposes. From early in history, mining has had a commercial purpose. The problems caused by landmines or other counter mobility devices have been threatening the lives of human beings for thousands of years. However, the actual efforts to remove the buried mines are a comparatively new issue.

The landmine problem is so widespread around the world that no single source could hope to cover the actual extent of the problem. The figures on landmine contamination have reached a point that terrifies whoever deals with the issue. The extent of the contamination throughout the world far exceeds the estimates of most officials. It is very serious—more than half of the world's countries are contaminated with landmines. Although the figures of total estimated landmine related death or injury varies from source to source, it is nearly 20,000 people per year, most of whom (nearly 90 percent) are civilians.

Today it is almost impossible to know the exact locations and numbers of existing landmines and minefields. Available data consists mostly of rough estimates (except for mature environments). The presence of landmines has been pieced together from partial records, rumors and, unfortunately, accounts of victims. Today, estimates of total landmines range from 110 million to 60 million. Another sad fact about the landmine contamination is that it has spread to almost every region in the world, with more than seventy-five countries affected to some degree by landmines and/or unexploded ordnance.

This high contamination and increasing number of casualties spurred the growth of the Mine Clearance Industry, mostly because of increasing demand from the mine-afflicted countries, NGOs, International organizations and the wealthy donor countries having financial resources to attract the growing industry.

The efforts for a landmine-free world are mainly dealt with by three main groups of players: NGOs, International Organizations (e.g., the U.N.), and Donors (either private

or government). Together, they try to raise funds, develop projects and either allocate funds to the implementers or contract out the projects to the commercial clearance firms or clearance NGOs.

Although all the countries are in immediate need for assistance from these players, they experience financial and technological problems that hinder their ability to address the problems properly. Besides, the amount of available staff and qualified companies is significantly lower than the actual demand. The imbalance between the supply and the demand, and the financial constraints of mine-afflicted countries, NGOs, and International organizations make the efforts much more difficult to deal with. Due to these challenges faced by the stakeholders, a thorough review of the current system and prevalent shortfalls needed to be addressed.

In this study the background of the problem, geography of the mine contamination, funding mechanisms, dynamics of the organizations dealing with the problem, efforts to achieve a mine-free world and recommendations for solution of the problem in the future are reviewed.

I. INTRODUCTION

A. BACKGROUND

As time goes by, the burden caused by mine and mine-related problems keeps skyrocketing. Over the past 30 years, the average number of people killed or maimed by landmines has tripled, and looks to continue growing indefinitely if nothing is done.

Despite the efforts of several agencies from all around the world, the problem seems like a never-ending tragedy.

Conversely, it whets private firms' appetites, owing to the almost immeasurable extent of the demand for de-mining. Singer estimates the market at $400 million.

This professional report explores every aspect of the dynamics of the de-mining organizations and industry.

B. PURPOSE

The document that will be produced after the completion of this project will inform all the decision-support elements of major agencies to understand capabilities, restrictions, and systems of de-mining organizations (especially private de-mining firms).

Finally, according to the results of this study, the research question stated below will be answered, and that may hopefully lead to the proposal of an efficient solution when it is needed.

C. RESEARCH QUESTIONS

1. How is de-mining industry funded?
2. How large is the industry?
3. Which firms are active in the industry?
4. Which are the other organizations dealing with de-mining or other landmine-related problems?
5. In which geographical areas are de-mining operations mostly executed?
6. Who are the stakeholders and what does the organizational structure of global fight against landmines look like?

7. What kinds of activities are conducted against landmines and their victims?

8. What are future projections for the industry and the efforts on mine-free world?

D. METHODOLOGY

The research methodology of this report consists of four components. First is the examination of history concerning mine-clearance organizations/industry, including militaries, NGOs and international organizations (U.N., GICHD, etc.). The second component is an analysis of the de-mining industry by using Porter's "Five Forces Analysis," driving factors of the industry, any sub-factors within these areas, and the competency of some key players.

E. ORGANIZATION

Chapter I gives an overview of this MBA Professional Report and lays out the road map of the research.

Chapter II provides a broad overview of the history of the de-mining industry and gives definitions and industry classifications that will be used throughout the report.

Chapter III examines funding of de-mining and answers the first research question.

Chapter IV provides a brief overview of the Geography of de-mining and general situation in the affected countries, and answers the fifth research question.

Chapter V is an integrated strategy analysis of the industry. The focus is on Porter's "Five Forces Analysis" and answers the first research question and answers the fifth second, third, fourth, sixth and seventh research questions.

Chapter VI summarizes the findings and presents recommendations for further research and study and answers the eighth research question by analyzing the Future scenarios for the industry.

F. BENEFITS OF STUDY

The document that will be produced after the completion of this project will inform all the decision-support elements of major agencies to understand capabilities, restrictions, and systems of de-mining organizations (especially private de-mining firms). Finally, according to the results of this study, the research question stated above will have been answered, and that may hopefully lead to the proposal of an efficient solution when it is needed.

G. OVERVIEW OF THE CURRENT SITUATION

The current situation of the overall Landmine Clearance efforts can be summarized with the following process chart. The details will be explained in the following Chapters.

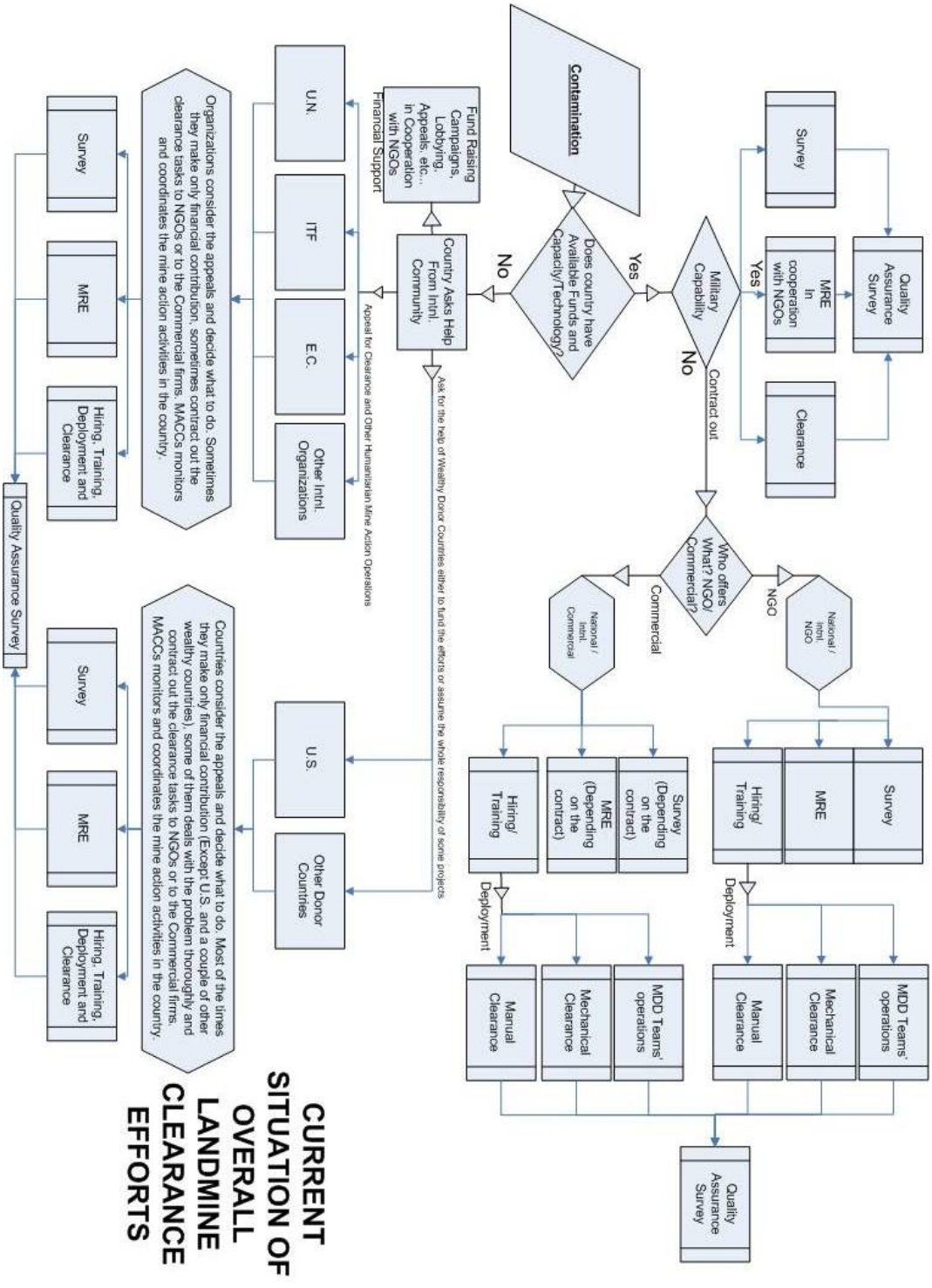
CURRENT SITUATION OF OVERALL LANDMINE CLEARANCE EFFORTS
Contamination
Does country have Available Funds and Capacity/Technology?
Yes
No
Military Capability
Yes
No
Contract out
Survey
MRE In cooperation with NGOs
Clearance
Quality Assurance Survey
Who offers What? NGO/ Commercial?
NGO
Commercial
National / Intnl. NGO
National / Intnl. Commercial
Survey
MRE
Hiring/ Training
Survey (Depending on the contract)
MRE (Depending on the contract)
Hiring/ Training
Deployment
Deployment
MDD Teams' operations
Mechanical Clearance
Manual Clearance
MDD Teams' operations
Mechanical Clearance
Manual Clearance
Quality Assurance Survey
Country Asks Help From Intnl. Community
Fund Raising Campaigns, Lobbying, Appeals, etc... in Cooperation with NGOs
Financial Support
Appeal for Clearance and Other Humanitarian Mine Action Operations
Ask for the help of Wealthy Donor Countries either to fund the efforts or assume the whole responsibility of some projects
U.N.
ITF
E.C.
Other Intnl. Organizations
U.S.
Other Donor Countries
Organizations consider the appeals and decide what to do. Sometimes they make only financial contribution, sometimes contract out the clearance tasks to NGOs or to the Commercial firms. MACCs monitors and coordinates the mine action activities in the country.
Countries consider the appeals and decide what to do. Most of the times they make only financial contribution (except U.S. and a couple of other wealthy countries), some of them deals with the problem thoroughly and contract out the clearance tasks to NGOs or to the Commercial firms. MACCs monitors and coordinates the mine action activities in the country.
Survey
MRE
Hiring, Training, Deployment and Clearance
Survey
MRE
Hiring, Training, Deployment and Clearance
Quality Assurance Survey

Figure 1. Current Situation of Overall Landmine Clearance Efforts

II. THE HISTORY OF MINE PROBLEM AND MINE CLEARANCE

A. INTRODUCTION

The term "landmine" is defined in several ways:

The Oxford Dictionary[1] gives the definition of "mine" as "a type of bomb placed on or in the ground or water, which detonates on contact."

Webster's Dictionary[2] gives the definition of "mine" as "an encased explosive that is placed in the ground and set to explode when disturbed,[3]" and the definition of "landmine" as "a mine usually placed just below the surface of the ground and designed to be exploded usually by the weight of vehicles or troops passing over it."

The name originates from the practice of sapping, where tunnels are dug (much like mining) under enemy fortifications or forces. These tunnels ("mines") are first collapsed to destroy fortifications above, and later filled with explosives and detonated."

Croll defines landmines as mass-produced, victim-operated, explosive traps.[4] The etymology of the word "mine" is derived from the Latin *mina*—a vein of ore—and was originally applied to the excavation of minerals from the earth. The technique and the term were borrowed by military engineers who dug mines during sieges and packed them with explosives to cause the collapse of the fortifications.[5]

Estimates of landmine production are that over seventy countries have, at some time, been involved in the production of approximately 340 different types of anti-

---

1 Oxford Dictionary, http://www.askoxford.com/concise_oed/mine_2?view=uk (accessed 12 July 2007).

2 Merriam-Webster's Online Dictionary, http://mw1.merriam-webster.com/dictionary (accessed 4 July 2007).

3 Merriam-Webster's Online Dictionary.

4 Mike Croll, *The History of the Land Mines* (Barnsley: Pen & Sword Books, 1998) ix.

5 Ibid, ix.

personnel landmines (APMs). They are easy to deploy and cost as little as $3 to produce.[6] Though they cost as little as $3 to produce, they cost as much as $1000 to remove. [7]

Estimates of the total number of APMs differ from source to source and there is really no way to learn the exact amount. The estimates range from 60 million to 110 million APMs.[8] Some sources claim that there are between 70 and 80 million landmines in the ground in one-third of the world's nations. The report (Hidden Killers: The Global Landmine Crisis) released by The U.S. Department of State estimates that the total number of landmines in place around the world is approximately 30 to 50 percent lower than originally estimated, which puts the number closer to 60 million than 110 million[9].

APMs are indiscriminate weapons that kill approximately 15,000 to 20,000 civilians every year. They have caused so many casualties that 1 out of every 236 people in Cambodia is an amputee due to landmine injuries; the numbers of similar victims include 20,000 in Angola and 8,000 in Mozambique.[10]

Their extensive and simple use allows them to be laid almost anywhere. Their pervasiveness, when combined with their relatively small sizes and often minimal metallic content, has made them difficult to locate and remove.

It is estimated that world-wide over U.S. $60 million was spent on mine clearance in 1999. Most of this funding is provided by government aid, often channeled via the United Nations or European Community. The minefield threat is very varied, with many different types of mines, unexploded ordnance (UXO), terrain and climate types. To cope with this variety a range of de-mining techniques are used—mechanical techniques such

[6] It is quoted in International Campaign to Ban landmines (*Landmine Monitor*) literature in the preparation for the Ottawa anti-personnel landmines banning treaty. This price of $3 price must be understood as the price of the simplest Type 72A Chinese anti-personnel blast mines.

[7] Landmines Website, http://www.landmines.org/crisis/ (accessed 7 November 2007).

[8] UNICEF Website, http://www.unicef.org/sowc96pk/hidekill.htm (accessed 7 November 2007).

[9] Hidden Killers: The Global Landmine Crisis, Report released by the U.S. Department of State, Bureau of Political-Military Affairs, Office of Humanitarian De-mining Programs, Washington, DC, September 1998, http://www.state.gov/www/global/arms/rpt_9809_demine_toc.html (accessed 7 November 2007).

[10] Parliamentary Secretary to The Minister for Foreign Affairs the Hon Kathy Sullivan Mp 30 OCT 1988, AusAID (Australian Government agency responsible for managing Australia's overseas aid program,) website, http://www.ausaid.gov.au/media/release.cfm?BC=Speech&ID=755_628_4093_4168_8935 (accessed 7 November 2007).

as flails, for example, are used for vegetation clearance. However the majority of de-mining work is still carried out by manual de-miners using metal detectors and prodders.[11]

B. HISTORY OF LANDMINES

1. Early Mines

Contrary to popular belief, the use of mines did not begin for military purposes. From early in history, have had a commercial purpose.

As Major William C. Schneck notes[12] "commercial underground mining began early in the Bronze Age." The earliest (7000 B.C.) underground mines were copper mines in Anatolia, now part of Turkey. Commercial use of mines led to an extensive and almost never-ending military use of these unseen killers. Because of the extensive use of thick city walls for protection from attacks, mining came to be seen as a potential tool for solving the "problem." Schneck states: "Early in the Bronze Age, walled cities began to appear in the Middle East to protect against raiders and other attackers. Jericho, on the west bank of the Jordan River, just north of the Dead Sea, is the oldest known walled city which has origins going back some 10,000 years ago. The walls at Jericho were about 13 feet high and 10 feet thick and were surrounded by a moat 25 feet wide and 9 feet deep.[13] Later, protective walls developed into huge affairs. Under Nebuchadnezzar II (around 600 B.C.) the walls at Babylon increased to a thickness of about 26 meters." This shows why early mining tools and techniques were developed in order to overcome the difficulties of conquering these walled cities.[14]

These special tools and techniques required special units to deal with the important and risky operations. Schneck states "The Assyrian Army organized the first known "corps of engineers" during the time of Ashurnasirpal II (about 850 B.C.). They

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[11] The market for advanced humanitarian mine detectors, Author(s): Peter Newnham, David Daniels, Publication Date: 1 October 2001, Abstract Section, http://www.eudem.vub.ac.be/files/Mahmd_Issue1.7.pdf (accessed 7 November 2007).

[12] Major William C. Schneck , the *Engineer Bulletin* July 1998, Federation of American Scientists, http://www.fas.org/man/dod-101/sys/land/docs/981100-schneck.htm (accessed 7 November 2007).

[13] Peter James and Nick Thorpe, *Ancient Inventions* (New York: Ballantine Books, 1995), 200.

[14] Sidney Toy Heineman, *A History of Fortification, From 3000 BC to AD 1700* (London: Pen and Sword, 1966), 2.

were the first soldiers equipped with advanced iron pioneer tools and are credited with the first known use of offensive mine warfare. During that time, military engineers used to drive tunnels under walls or fortifications to undermine and gain access to fortified areas for a full-scale attack.[15] These engineers excavated a chamber under the wall and braced the ceiling with timber supports. The supports were then burned, causing the chamber and the structure above it to collapse. Attacking soldiers then assaulted through the breach." The British museum owns one of the earliest pieces of evidence of this tactic. It is an Assyrian orthostat (wall relief) depicting the breaching of the city wall by tunneling.[16]

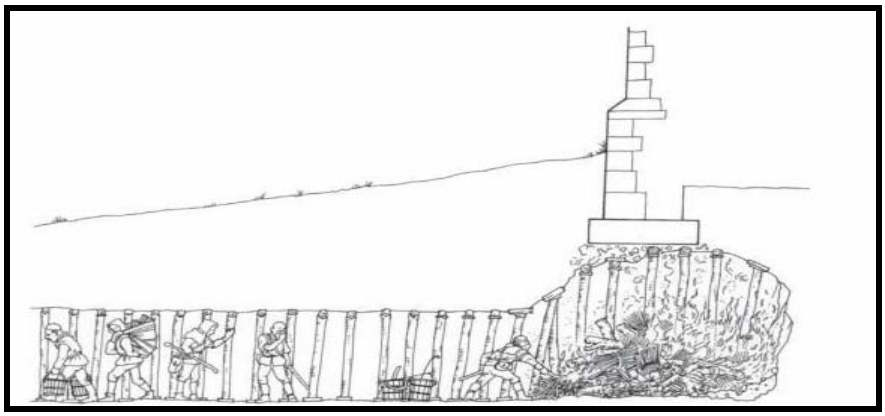

Figure 2. Early Mining

(Drawing from Beneath Flanders Fields: The Tunnellers' War, 1914-1918 By Barton, Peter, Doyle, Peter, Vandewalle, Johan, published by Spellmount limited in 2004[17])

Later, landmines were used as a means of reinforcing defensive battlefield obstacles; for example, Alexander the Great used caltrops (a device comprising four spikes, usually made of iron, joined AT THE CENTER and arranged so that when thrown on the ground, one spike always points upwards with the other three forming the base)

[15] Yigael Yadin, *The Art of Warfare in Biblical Lands*, *Volume 1* (New York: McGraw-Hill Book Company, 1963), 317.

[16] Norman Edgar Youngblood, *The Development of Mine Warfare IV* (Westport: Greenwood Publishing, 2006), 9.

[17] Peter Barton, Peter Doyle and Johan Vandewalle, *Beneath Flanders Fields: The Tunnellers' War, 1914-1918,(U.K.:* Spellmount Limited, 2004), 28.

around 330 B.C., which could be spread in front of their battle lines to disrupt the terrifying attacks of the massive Persian war elephants.[18] Caltrops were used as recently as the Korean conflict, when the U.S. Air Force dropped them on Chinese convoys to puncture tires. The U.S. also dropped them on the Ho Chi Minh Trail during the Vietnam War.[19]

During the siege of Alesia in 52 B.C. another obstacle, "the Abatis" (a defensive obstacle formed by felled trees with sharpened branches facing the enemy[20]), was used by Julius Caesar's military engineers.[21]

During the same siege Caesar's engineers had to form two defensive lines, one oriented inward against a breakout from Alesia, and the other outward to repel a relief force attempting to raise the siege. He dug two trenches of equal depth, each fifteen feet wide and filled the inner one with water. Behind the trenches a palisaded rampart was erected.[22] A combination of entanglements and combat support elements such as ditches, palisades, towers and abates were used to slow the attacking enemy. These obstacles gave Caesar time to successfully deploy reserve forces to threatened areas along his 13-mile perimeter. In the tactical defensive, the use of concealed spikes and stakes was almost identical to that of contemporary landmines. They were used by armies to enhance fortifications in static defense or to change the terrain to their advantage, often in the face of a stronger enemy.[23]

Although these devices provided area denial for the warring parties, they had no explosive components.

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18 Croll, *The History of Land Mines*, 5.

19 Schneck , *the Engineer Bulletin,* July 1998.

20 Webster's Dictionary.

21 Croll, *The History of the Land Mines*, 2.

22 Ibid, 2.

23 Roger L. Roy, Shaye K. Friesen, *"Historical Uses of Antipersonnel Landmines: Impact On Land Force Operations"*, (Research note 9906, Canadian Department Of National Defense Operational Research Advisor, Directorate Land Strategic Concepts, October 1999), 2, website http://www.reviewconference.org/fileadmin/pdf/review_conference/regional_conference/amman/Historical_Uses_Study.pdf , (accessed 29 November 2007).

2. Explosive Mines

Only after the start of the widespread use of black powder (gunpowder) did landmines become an inevitable weapon for area denial. Their invention was one of the most important developments of the late Middle Ages. But, there has always been a big mystery about the origins of black powder. The answers to the questions of who actually discovered it and where it was first used are not easy. The majority of sources claim that black powder—a mixture of sulfur, saltpeter and charcoal—was invented in China in the seventh or ninth century.[24] Some claim that it was invented by ancient Greeks. Unfortunately, there is no clear evidence to bolster any of these claims.

The discovery of gunpowder in Europe is often attributed to the English Franciscan friar Roger Bacon (1214-1292), who restricted knowledge of it.[25] As a scientist and philosopher, he mentioned the explosive properties of explosive mixtures in his "De Secretis Operibus Artis et Naturæ," although he did not lay claim to the discovery of it. Black powder was not generally used for military purposes until the 14th century.[26]

A German monk, Berthold Schwarz, is credited with the invention of the composition of gunpowder and its use in guns in about 1250, based on his development of Bacon's formula.[27] This innovation resulted in the next major improvements in military mining.

Wide use of explosives began after the invention of black powder. In particular, the shock and effectiveness of tunnel mines were considerably increased by setting off bulky charges of black powder at the end of galleries dug under defensive walls and other fortifications.

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24 Gabor Agoston, *Guns for the Sultan: Military Power and the Weapons Industry in the Ottoman Empire*, (New York: Cambridge University Press, 2005), 1.

25 Croll, *The History of the Land Mines*, 8.

26 Ibid, 8.

27 Ernest J. Parry, *The chemistry of powder and explosives* , 1943, 29, website http://www.sciencemadness.org/library/books/the_chemistry_of_powder_and_explosives.pdf, (Accessed 29 November 2007).

The earliest explosive-based landmines appear to have been used by Italian educated John Vrano in 1439 during the defense of Belgrade against the Turks.[28]

These earliest landmines were known as *fougasses* (Figure 2) and were actually underground cannons that showered rocks and debris over a wide area. Although fougasses had the potential to stop an attack, they were frequently unreliable and had serious limitations. They were not reloadable as normal cannons,[29] and were limited only to a few vulnerable areas. They were simple black powder devices first developed for defending permanent fortifications. Fougasses connected with obstacles were the landmines of their day. They were used to repulse the attacking enemy by detonating a black powder charge set under a load of fragments, rocks or iron pieces packed in a deep hollow chamber. If properly emplaced, a horizontally fired fougasse functioned as a crude claymore mine, while the shell fougasse could function like a bounding antipersonnel (AP) mine or a simple fragmenting mine.[30]

Fougasses were employed by one of George Washington's engineers, Francois de Fleury (of de Fleury Medal fame), in October 1777 against the Hessians at Fort Mercer, New Jersey, on the east bank of the Delaware River.[31]

Figure 3. A Fougasse Mine

28 Christopher Duffy, *Siege Warfare: The Fortress in the Early Modern World 1494-1660*, (New York: Routledge, 1997), 11, http://books.google.com/books?id=xnx_tmW5v90C&pg=RA3-PA11&ots=k-Rk17tZpb&dq=John+Vrano+mine+turk&sig=uRukK9ZrMGLxm-IZ95DiyIJl7yY#PRA3-PA11,M1 (accessed 7 November 2007).

29 Croll, *The History of the Land Mines*, 8-9.

30 Schneck , *the Engineer Bulletin,* July 1998.

31 Paul K. Walker, *Engineers of Independence, A Documentary History of the Army Engineers in the American Revolution, 1775-1783*, (Honolulu: University Press of the Pacific, 2002), 158-159.

Stone fougasses are still employed occasionally by irregular forces, such as the Viet Cong, Central American guerillas, and Bosnians,[32] who lack access to modern land mines

3. Pressure-Operated Landmines

Croll states that pressure-operated mines are also deployed in a way similar to the ancient trap-and-spike systems. Croll adds, "They may be used en masse to create or enhance defensive positions, or individually to inflict casualties and induce caution. By using explosives rather than spikes, landmines are capable of producing far more devastating effects on the human body and, unlike spikes, the wounds they inflict are not proportional to the weight acting upon them."[33] The earliest description of a pressure-operated landmine is provided by the German military historian H. Freiherr von Flemming in 1726. In his book he describes what a *fladdermine* (literally meaning a flying mine) looked like: "It consisted of a ceramic container with glass and metal fragments embedded in the clay containing 0.90 kilos (2 lb) of gunpowder, buried at a shallow depth in the glacis of a fortress and actuated by someone stepping on it or touching a low strung wire."[34] But, it did not become a regular feature of warfare until the second half of the 19th century.

In his book on siege warfare, Sebastien Le Prestre de Vauban (French Marshal, 1630-1707) revealed his own principles of military mining that remained valid until the 19th century.[35] Vauban's manual can be considered to be the first scientific manual of demolitions. He managed to define the necessary steps, calculation methods, placement and the quantities of explosives necessary for the intended impact.

There has always been a big variety of opinions as to who actually used landmines for the first time. Although it is claimed that the first modern pressure-

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32 *Engineer, Contingency Handbook* (former Yugoslavia), U.S. Army Engineer School, Ft Leonard Wood, Missouri, July 1993,1-32.

33 Croll, *The History of the Land Mines*, 14.

34 Dr. Richmond H Dugger, "A Rose by Any Other Name: The Interrelationship of Landmines and Other Explosive Remnants of War," *Journal of Mine Action*, August 2006, issue 10.1. Website, http://maic.jmu.edu/journal/10.1/feature/dugger/dugger.htm (Accessed 29 November 2007).

35 Sebastien de Vauban, translated by George Rothrock, *Manual of Siegecraft and Fortification*, (Ann Arbor: The University of Michigan Press, 1968), 107-112.

activated landmine was developed by Immanuel Nobel in the 1850s and used in the Crimean War,[36] most of the sources claim that the Americans were the first nation to develop and use landmines for military purposes; this is attributed to Confederate Brigadier General Gabriel J. Rains. In 1862 Rains ordered his troops to prepare artillery shells so that they could be exploded by pulling trip wires or by being stepped on. On 4 May 1862, while scouting along a road leading to Yorktown, a horse rider activated one of these landmines, becoming the first person killed by a pressure-operated landmine.[37]

During the U.S. Civil War, Confederate forces used landmines in an attempt to equalize the disadvantageous imbalance between the opposing forces. Use of landmines slowed down the advance of Union troops and let the retreating Confederate forces gather enough reinforcements and time to fight a delaying battle. Its psychological effects became more significant than its physical effect. Roy and Fiesen state[38] that:

> Pressure-operated mines were deployed in belts to create or enhance defensive positions, or individually to inflict casualties and create caution. By using explosives, early landmines were capable of producing casualties, ranging from amputation of limbs to death. The psychological effect of pressure-operated mines was considerably greater than the caltrop. The Confederates used pressure mines to enhance their defensive positions and to ensure the Union troops were exposed to as much attrition as possible. Landmines produced caution in the mind of attackers. In addition, victim operated mines could impose a delay during a withdrawal without sacrificing troops in rearguard actions. Although lacking the range and destructiveness of the fougasse, the pressure-operated landmine had several advantages: it was easier to conceal, less susceptible to artillery disruption and did not require a firing party.

4. Mine Use Before the First World War

Americans were not the only ones using landmines in the 19th Century. The British Army also used landmines in their colonial wars, particularly during the Boer War (1899-1902) where they found mines helpful in stopping Boer raiding parties from destroying the bridges and railroads. In addition, the British used makeshift mines in their

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36 Youngblood IV, *The Development of Landmine Warfare*, V.

37 Geneva International Centre for Humanitarian De-mining, *A Study of Manual Mine Clearance*, August 2005, 15.

38 Roy & Friesen, *Historical Uses of Antipersonnel Landmines: Impact On Land Force Operations*, 4.

wars in Sudan and against the Zulu.[39] In Sudan, during the defense of Khartoum, British officers believed that landmines were an effective form of defense.[40] Following the operations in Sudan, British General Gordon sent a letter to one of his friend and said "Landmines are the thing for defense in the future. We have covered the works with them and they have done much execution."[41] British troops used mines and booby traps to protect railroad-building parties from attack during the Zulu Wars (1879).[42] During the Boer War (1899-1902) the British used mines to protect a railway; a Royal Engineer noted the moral effect: "Although the line had been injured for eight successive nights before the mines were laid, it was never interfered with…after the first explosion."[43]

After noting landmines as an effective form of defense, the Russians were the next military to use these deadly tools. Croll states that Russians used them during the Russo-Japanese War (1902-1904) to defend their weak trenches from the Japanese army.[44]

Landmines used before World War II were not used as effectively as the ones after the war, although various types have been used. Shaye and Friesen state[45] "According to a prominent historian of technology, Martin Van Crevald:

> The evolution of weapons of war is not solely governed by rational considerations pertaining to their technical utility, capabilities and effectiveness. Technology is also intertwined with anthropological, psychological and cultural factors. These factors frequently push the development of weapons down seemingly illogical and irrational paths in which weapons such as the AP mines are considered unfair, since they enable their users to kill from a distance and behind cover, with the victim being chosen indiscriminately and unable to retaliate.

39 Youngblood IV, *The Development of Landmine Warfare*, 73.

40 Roy & Friesen, *Historical Uses of Antipersonnel Landmines: Impact On Land Force Operations*, 6.

41 Croll, *The History of the Land Mines*, 20.

42 Ibid, 21.

43 Ibid, 21.

44 Ibid, 21.

45 Roy & Friesen, *Historical Uses of Antipersonnel Landmines: Impact On Land Force Operations*, 8.

5. Mine Use During World War I

The major use and development of landmines in the First World War came after the introduction of tanks.[46] It is stated in "The Hidden Killer" that "Technological advancements shifted mine warfare from attacking fixed targets to stopping moving troops and vehicles, particularly the tank."[47] Tanks were such an effective tool for overcoming barbed wire and trenches that they had to be stopped in any way. Anti-tank mines were introduced to provide defending troops with the means to create an obstacle to armored vehicles that were seemingly unstoppable by the conventional barriers of ditch and wire.[48] The first tanks were used in battle by the British in September 1916.[49] In 1917, British Tank Corps units achieved a surprise victory against superior German units at Cambrai. It was the first major success for the tank.[50] Defending against those monsters was almost impossible at the beginning of 1917. But later on the Germans devised some solutions for the new threat. They first tried to use natural obstacles by flooding lands to create swamps through which tanks could not pass. But this later proved to be ineffective. The Germans decided to use mines to meet the threat.

The first landmines used during WWI were adapted from ordinary artillery shells. The mines (shells) were laid under the trench soil with the fuses above ground. Another type of landmine used was the long-delay-action device used by the Germans. This was also an artillery shell but with a chemical fuse that detonated up to 48 hours after activation.[51] These long-delay AP mines were buried by the Germans in abandoned positions and roads to harass advancing Allied forces.[52]

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46 Robert Keeley, Understanding Landmines and Mine Action, September 2003, 7, http://www.minesactioncanada.org/techdocuments/UnderstandingLandmines_MineAction.pdf (accessed 7 November 2007).

47 Hidden Killer, 1994 Report to the U.S. Congress on the Problem with Uncleared Landmines and the U.S. Strategy for Demining and Landmine Control, U.S. Dept. of State Bureau of Political-Military Affairs, 3.

48 Keeley, *Understanding Landmines and Mine Action*, 7.

49 Croll, *The History of the Land Mines*, 28.

50 Lt. Col. C E E Sloan, *Mine warfare on land,* (London: Brassey's Defence Publishers, 1986), 1.

51 Croll, *The History of the Land Mines*, 26.

52 Roy & Friesen, *Historical Uses of Antipersonnel Landmines: Impact On Land Force Operations*, 8.

The anti-tank mines used were easily detected and removed by the enemy. In order to protect those mines, smaller mines—anti-personnel mines—were needed to prevent enemy forces from removing the anti-tank mines. Anti-personnel mines would slow engineers sent into the minefields to clear paths, and their detonation would also alert the defenders to the fact that an attack was in progress.[53]

Despite the massive scale of the First World War (1914-1918), the use of AP mines was not widespread because new weapons of the industrial age gave rise to defensive tactics and technology that marginalized them.[54]

Although landmines did their part in the World War I, their overall contribution to the belligerents was not as big as it was thought to be. They were particularly effective in delaying the advance of attacking forces, providing defensive barriers and closing critical supply routes. Their primary defensive use was to protect exposed flanks.[55]

Anti-tank mines were used extensively during both world wars; more than 300 million anti-tank mines were used during World War II alone.[56]

6. Mine Use During World War II

Unlike its rarity during World War I, mine warfare became firmly established in World War II, when the landmine in its common form was used by almost all combatants. [57]

This time the mine's scale of employment was far greater than in previous wars. Instead of using landmines as single-point destruction munitions, technical improvements led to their expanded use as full area-control devices. In connection with this role, the concept of trip wires was developed, both to increase the likelihood of an enemy's detonating the mines and to enjoy broader area coverage beyond a defender's immediate visual range.

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53 Keeley, *Understanding Landmines and Mine Action*. 7.

54 Roy & Friesen, *Historical Uses of Antipersonnel Landmines: Impact On Land Force Operations*, 8.

55 Hidden Killer, 1994 Report to the U.S. Congress, 3.

56 Adopt a mine-field campaign of the United Nations Association of the USA, http://www.landmines.org/crisis/history.cfm (accessed 7 November 2007).

57 *Hidden Killer*, 1994 Report to the U.S. Congress, 3.

Although the Germans were the major innovators of mine techniques, British soldiers were the first to begin using landmine in the Second World War. Landmines were first used in North Africa by the British army to protect strong points in fighting between the British and Italian forces on the Egyptian-Libyan border. They cost the Italians many casualties and made Italian advance significantly slower and overcautious.[58] In addition, the British were the first nation to lay mine fields over a large area. In June 1940, the British Army retreated to Dunkirk before Hitler's Panzers, and stood vulnerable against an enemy that now dominated the mainland. Having lost most of their anti-tank weapons, they resorted to extensive minefields in an effort to buy time.[59]

Beginning from these instances, mine warfare reached its peak in the North African campaign, where the desert provided few obstacles to maneuvering armies. Here huge minefields, extending many miles, took the place of nonexistent forests, rivers, and towns.[60]

German mines were constantly updated to defeat countermeasures. Mines were laid in distinct, mathematically defined patterns to ensure a higher kill ratio.[61] Producing reliable, economical, simple, durable mines—and using standardized sizes and interchangeable parts to ensure compatibility—the Germans were far in advance of other countries. The Germans also developed very interesting landmine usage tactics. One of their techniques was waiting until the enemy had infiltrated well inside the minefield (a term that Croll states was introduced into the vernacular by demobilized citizen soldiers after the Second World War.[62]) before opening fire. This tactic was effective because the enemy had little opportunity to extract.[63]

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58 *Hidden Killer*, 1994 Report to the U.S. Congress, 3.

59 Croll, *The History of the Land Mines*, 55.

60 Keeley, *Understanding Landmines and Mine Action.* 7.

61 Roy & Friesen, *Historical Uses of Antipersonnel Landmines,* 10.

62 Croll, *The History of the Land Mines*, 53.

63 Roy & Friesen, *Historical Uses of Antipersonnel Landmines,* 10.

The real increase in anti-tank mine warfare began after the few industrialized nations interested in advanced military equipment sought ways to overcome the disadvantage of lacking the necessary countermeasures to the new German military doctrine. Sloan states that[64]:

> Prior to World War II, few nations of the industrial world gave proper consideration to advances in military thought or equipment. Mechanized warfare was neglected along with other aspects of armed forces. It took crushing defeats from Blitzkrieg in Europe, and Afrika Korps successes in Libya, to accentuate the rising importance of the tanks in the battle. The outcome of this was a pressing necessity to develop an effective defense against armor for the great majority of the troops fighting on the foot."

McGrath states that land mines were the easiest and quickest solution to the potential threat from armored vehicles.[65]

As the threat and the need for countermeasures increased, the types and mechanisms of the mines increased very rapidly. New types of fragmenting AP mines such as bounding mines, directional mines and simple fragmenting mines emerged.[66]

During World War II, more than 300 million antitank mines, filled with powerful, lightweight trinitrotoluene (TNT), were deployed by all warring armies.[67] Using an estimated 222 million mines in World War II, the Soviet Union surpassed any modern nation in its reliance on mine warfare.[68]

It is also estimated that 20% of the total tank losses in World War II were due to landmines.[69]

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64 Sloan, *Mine warfare on land,* 3.

65 Rae Mcgrath, *Landmines and Unexploded Ordnance, A Resource Book*, (Sterling: Pluto Press, 2000), 1.

66 Roy & Friesen, *Historical Uses of Antipersonnel Landmines,* 11.

67 Canadian Landmine Foundation's Adopt-a-minefield, Website, http://www.canadianlandmine.org/landmineProb_History.cfm (accessed 7 November 2007).

68 *Hidden Killer*, 1994 Report to the U.S. Congress, 5.

69 Sloan, *Mine warfare on land,* 2.

Use of landmines presented the warring parties with other savings in economic and manpower resources. They were economic because of their ease of manufacture and low cost, and they provided extra manpower in that they were waiting in the minefields as loyal and ready soldiers.

7. Mine Use During the Korean War

The end of World War II did not mean an end to the use of landmines, as the world enjoyed peace for less than a decade. The North Atlantic Treaty Organization (NATO) was formed in 1949 as a safeguard organization against the emerging Communist bloc. Such a defensive move was seen as necessary, given that Communism was spreading in Eastern Europe and the Far East, and creating a world split into the competing camps of Capitalists and Communists.[70] This tension between the sides increased over time, and as a result the Korean conflict broke out in 1950.[71]

Mine warfare developed in Korea differently from in World War II both in scale and in tactics. The experiences gained in the previous war enabled all the combatants to use their experiences and lessons learned in the Korean theatre. Roy and Friesen state that, "The Korean War (1950-1954) offered the first opportunity for the lessons of the Second World War to be applied."[72] Croll states, "In general, the Korean War served to underline the lessons of the Second World War rather than to illuminate any new aspects."[73]

Korea's predominantly mountainous terrain tended to channel movement along a few restricted corridors. Mines were most often used to block roads, passes, and other avenues of movement. Roy and Friesen state that, "As in the Italian and Pacific theatres in WWII, the mountainous terrain in Korea restricted movement, and the valleys and passes were obvious places in which mines would be laid."[74]

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[70] Lydia Monin & Andrew Gallimore, *The devil's gardens, a history of landmines*, (London: Pimlico, 2002), 67.

[71] Russel H. Stolfi, *Mine and Countermine Warfare in Recent History, 1914-1970*, 99.

[72] Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 24.

[73] Croll, *The History of the Land Mines*, 101.

[74] Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 24.

Initially, neither the South Koreans nor North Koreans were able to use mines as a method of defense (this relatively mine-free environment drastically changed when the U.S. entered the war in 1950 as the leading member of a United Nations coalition mandated to defend the South).[75] The reason is that neither of the combatants had any kind of formal training in mine warfare.[76] It is stated in "Hidden Killers" that the minefields U.S. troops encountered had no standard pattern, reflecting the inexperience of North Korean minelayers.[77] This fact caused both sides to suffer from friendly minefields.[78] In one incident, Australian forces suffered fifty casualties when they unwittingly entered an unmarked, unrecorded minefield that had been laid by Canadians. But the Canadian Army was not alone in committing errors when laying mines. The British suffered fatal accidents in their own minefields due to errors and faults in procedure.[79]

At the beginning of the war there was a great deal of fairly fast movement. Neither of the sides could employ more than a modest number of mines. As the war stabilized after February 1951, both sides laid all kinds of mines in large numbers.[80] It was not only because the U.N. forces had more mines that they used a lot of minefields, but also that they wanted to compensate for the shortage of the troops with respect to enemy.[81] The U.N. forces used extensive numbers of mines in barrier minefields in front of their lines, all along the 38th parallel.

Compared to North Africa, where approximately 2,000 AT mines were used per tank casualty, in Korea's restrictive terrain the rate was about 80 mines per tank casualty.[82] Stolfi gives the percentage of U.S. armor losses due to landmines during the

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75 Human Rights Watch Arms Project -Vietnam Veterans of America Foundation, *In Its Own Words, The U.S. Army and Antipersonnel Mines in the Korean and Vietnam Wars*, July 1997, Vol. 9, No. 3 (G), 4, website, http://www.hrw.org/reports/pdfs/g/general/general977.pdf (accessed 7 November 2007).

76 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 24.

77 *Hidden Killer*, 1994 Report to the U.S. Congress, 6.

78 Stolfi, *Mine and Countermine Warfare in Recent History, 1914-1970*, 100.

79 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 25.

80 Stolfi, *Mine and countermine warfare in Recent History, 1914-1970*, 99.

81 Monin & Gallimore, *The devil's gardens, a history of landmines*, 68.

82 *Hidden Killer*, 1994 Report to the U.S. Congress, 6.

early parts of the war as 40% of total armor losses. Landmines accounted for 70%[83] of total U.N. armor losses.[84] According to the Office of the Surgeon General of the U.S. Army, 3.7% of U.S. Army wounded fell to mines and booby traps. [85]

8. Mine Use During the Vietnam War

The ongoing expansion of the Communist bloc precipitated another clash between East and West in Southeast Asia. After being partitioned by the Geneva agreements of 1954, the country of Vietnam was divided into two separate parts, the Communist north and the non-Communist south. Agreements were aimed at unification of the two parts, but failed when the South Vietnam refused to go along. The U.S. decided to support the South by assuming the role of global police force. After some years of advising and indirect support of the South Vietnamese armed forces, the U.S. (in 1965) became more directly involved in the situation and passed a resolution to take military action.[86]

Having seen the benefits of using landmines, Western countries decided to improve landmine technology. Croll claims that improvements in AP mine technology were due mostly to the heavy reliance NATO placed on mines in stopping a potential Warsaw Pact attack in the event of European war.[87] An example of the new mine technology was the small, plastic and quickly emplaced Canadian C3A1 AP mine (or Elsie).[88] In another development the U.S. unleashed remotely delivered landmines that carpeted Vietnam, Laos and Cambodia along the Ho Chi Minh Trail.[89] U.S. forces also used the BLU series of bomblets, which were improvised version of German SD2 bomblets. But these were often picked up by the Viet Cong (VC) and transformed into fragmentation mines targeted against their original makers.[90]

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83 *Hidden Killer*, 1994 Report to the U.S. Congress, 6.

84 Stolfi, *Mine and countermine warfare in Recent History, 1914-1970*, 102.

85 Ibid, 101.

86 Monin & Gallimore, *The devil's gardens, a history of landmines*, 70-71.

87 Croll, *The History of the Land Mines*, 102.

88 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 25.

89 Monin & Gallimore, *The devil's gardens, a history of landmines*, 71.

90 Croll, *The History of the Land Mines*, 107.

Americans suffered many casualties in Vietnam as a result of mine warfare. Most of the time, U.S. forces were unable to cope with the VC's offensive AP mine warfare tactics. VC soldiers rarely laid protective minefields, because there were usually no conventional "fronts" to defend.[91] Battlefields constantly moved back and forth. In the confusion, U.S. pilots sometimes dropped mines on their own troops.[92] Americans used fortified "firebases" to launch hit-and-run attacks to capture or kill VC soldiers,[93] venturing out into hostile territory that was often thick with enemy antipersonnel devices. One third of all U.S. casualties in Vietnam were caused by mines and booby traps.[94] Mines and booby traps were employed so often and so effectively by the VC that the war has often been referred to as the "War of Mines and Booby Traps."[95] It is known that the first U.S. soldier to die in the Vietnam War was killed by an antipersonnel mine.[96]

Although the VC's arsenal was considerably more limited than that of the U.S.,[97] they were superior in mine warfare, especially in turning the Americans' own munitions against them. Ninety percent of the mines and booby traps used against U.S. troops were either American-made or composed of U.S. parts.[98]

It is stated in the U.S. Report "Hidden Killers"[99] that:

> The Viet Cong (VC) and People's Army of Viet Nam (PAVN) developed mine warfare doctrine that stressed the appropriation of enemy mines, the Claymore being particularly prized. In one province, after American forces had planted 30,000 mines as part of a 15-mile antipersonnel barrier to separate the guerrillas from the local population, the VC lifted approximately 10,000 mines. The insurgents were also adept at making antipersonnel mines from American cluster bomb units. Americans estimated that 90 percent of the material used by the VC to manufacture mines, including explosives, was derived from American military sources.

91 Croll, *The History of the Land Mines*, 104.

92 Monin & Gallimore, *The devil's gardens, a history of landmines*, 73.

93 Ibid, 71

94 Human Rights Watch Arms Project -Vietnam Veterans of America Foundation, 3.

95 Ibid, 8.

96 Ibid, 8.

97 Croll, *The History of the Land Mines*, 103.

98 Human Rights Watch Arms Project -Vietnam Veterans of America Foundation, 3.

99 *Hidden Killer*, 1994 Report to the U.S. Congress, 6.

VC troops also used locally improvised explosive devices[100] made of tin cans discarded by American troops, bamboo tubes and unexploded American ordnance. The widespread employment of *punji* stakes was reminiscent of the caltrop and reflective of their difficulty in obtaining and manufacturing AP mines. These instances of VC ingenuity help to explain the high numbers of U.S. casualties.[101]

U.S. troops tried their best to prevent the movement of troops and weapons from north to south. In order to achieve their goals they dropped more bombs than they did in all of World War II. They dropped fifteen million tons of bombs, mines and shells on Vietnam—a ratio of 280 kilograms of ordnance for each Vietnamese citizen.[102] U.S. troops also employed Claymore mines as an offensive weapon to interdict supply routes, but most of their efforts were concentrated on defense.[103]

The Vietnam War marked a change in mine warfare. The insurgents mined roads nightly, making mine clearing by combined infantry, armor, and engineer teams a daily task.[104] The daily road clearance caused many U.S. casualties.[105] Viet Cong troops slowed these efforts by scattering metal fragments on the roads. Sometimes VC troops waited until a road was cleared then replanted mines in the same area to explode when unsuspecting U.S. troops passed on the supposedly safe road.[106]

U.S. troops used mine detectors, specially equipped tanks, plows, and bulldozers to detonate mines, cut tripwires, and clear vegetation to better detect mines and prevent ambushes. But plastic mines and other nonmetallic devices began to pose a very serious problem. They were virtually impossible to detect, except by manual probing.[107] Due to the technological developments, widespread use and demonstrated effectiveness of mine warfare in The Vietnam War, the conflict became a turning point in the manufacture,

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[100] Croll, *The History of the Land Mines*, 103.

[101] Roy & Friesen, *Historical Uses of Antipersonnel Landmines,* 30.

[102] Monin & Gallimore, *The devil's gardens, a history of landmines*, 71.

[103] Roy & Friesen, *Historical Uses of Antipersonnel Landmines,* 31.

[104] *Hidden Killer*, 1994 Report to the U.S. Congress, 7.

[105] Croll, *The History of the Land Mines*, 105.

[106] Monin & Gallimore, *The devil's gardens, a history of landmines,* 72.

[107] *Hidden Killer*, 1994 Report to the U.S. Congress, 7.

supply and distribution of landmines. During and after the war some of the world's developed nations began manufacturing large quantities of landmines. A landmine industry emerged.[108]

In the Vietnam War, the Viet Cong took AP mines out of their traditional defensive role and used them as offensive weapons to attack and harass their opponent. As a result, mines and booby traps caused up to 11% of U.S. personnel killed in action and up to 15% wounded in action (compared to less than 4% in WWII and Korea),[109] with most U.S. casualties occurring during road clearing operations.[110] As for the armor losses, figures are much worse. According to estimates, U.S. armor losses from mine attack accounted for 70% of total armor losses from enemy mine warfare actions.[111]

9. Mine Use During the Arab-Israeli Wars

After Egypt's nationalization of the Suez Canal, Israeli troops attacked across the breadth of the Sinai Peninsula[112] on 29 October 1956. Arab forces defended themselves by using barrier minefields, knowing that the predominant weapon of the Israeli land forces was the tank.[113] Thanks to the landmines, an entire company of Israeli forces were destroyed in the battle at Um Katef.[114]

The landmines laid by Jordan, Syria and Egypt before Israel's assault in 1967's Six Days War could not stop the attacking forces. Despite their ineffectiveness, those mines remain in place as a major danger.

The fiercest of all the Arab-Israeli Wars erupted on 6 October 1973, with an Arab assault timed to take advantage of a lessened Israeli defensive presence due to the Yom Kippur holiday. Israel's borders were protected by various combinations of entanglements and minefields, but Arab forces managed to breach the thick minefields by

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[108] Monin & Gallimore, *The devil's gardens, a history of landmines*, 72.

[109] Roger L. Roy, *Tactical Impact of Removing Antipersonnel Landmines* (Research Note-RN 0005 for Department Of National Defence Canada, November 2000, 7.

[110] Roy & Friesen, *Historical Uses of Antipersonnel Landmines,* 24-30.

[111] Sloan, *Mine warfare on land*, 5.

[112] Monin & Gallimore, *The devil's gardens, a history of landmines*, 72.

[113] Sloan, *Mine warfare on land*, 6.

[114] Monin & Gallimore, *The devil's gardens, a history of landmines*, 180.

using flails (four or five tanks[115]) and ploughs.[116] However, in the next stages of the war, everything turned against the Arabs and Israeli troops counterattacked them. In one engagement the Egyptian 25th Armored Brigade, comprised of 100 T-62 tanks[117] was spotted by Israeli troops and driven into an Israeli defensive minefield.[118] Caught between mines and the tank guns of two opposing brigades, the 25th Brigade lost 86 of their T-62 tanks and every one of their APCs.[119]

The Arab-Israeli Wars demonstrated a couple of critical points to all military authorities and tacticians. The biggest lesson learned was that no matter how strong a minefield is, whether based on natural or artificial barriers, it can be penetrated by surprise, ingenuity and determination.[120] The main themes were the surprise attack and speed of the battle.[121]

The Arab-Israeli Wars were studied by defense analysts as an example of the form of warfare that would occur in Europe between Warsaw Pact and NATO forces.[122]

The Israeli troops learned from this war that they needed to develop mine ploughs for rapid breaching and detection/disposal systems for the many kinds of landmines used during the wars.[123]

10. Mine Use During the War in Rhodesia

After declaring its independence from Britain, Rhodesia (now Zimbabwe) struggled against nationalist guerrillas employing offensive mine tactics.[124] The newly

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115 Monin & Gallimore, *The devil's gardens, a history of landmines*, 180.

116 Croll, *The History of the Land Mines*, 109.

117 Sloan, *Mine warfare on land*, 7.

118 Monin & Gallimore, *The devil's gardens, a history of landmines*, 181.

119 Sloan, *Mine warfare on land,* 7.

120 *Hidden Killer*, 1994 Report to the U.S. Congress, 7.

121 Croll, *The History of the Land Mines*, 109.

122 Roy & Friesen, *Historical Uses of Antipersonnel Landmines,* 35.

123 Sloan, *Mine warfare on land,* 7.

124 Croll, *The History of the Land Mines*, 114.

founded government had lots of problems. The first two problems they encountered were the hostile states surrounding them and international trade embargo that they suffered from.

The first mine attacks in Rhodesia occurred in 1972 and continued with increasing frequency until the end of the war in 1980.[125] During this time, the Rhodesian government fought its own civil war, which led to democratic elections in 1980.[126] This period witnessed 2,405 recorded instances of anti-tank mines killing 632 and wounding 4,410 people[127] despite the fact that the Rhodesians had few armored vehicles.[128]

The vast expanse of African bush, cut by a few dirt roads, was ideal terrain for offensive mining operations. A man armed with a single TM46 AT mine could be as effective as an aircraft with a full payload of scatterable mines. [129]

The Rhodesians focused their efforts on protecting the occupants of vehicles from the effects of mine blasts. They faced the problem with great ingenuity and decided to fit Land Rovers with metal plates to deflect the blast, rubber matting to absorb the shock and roll bars to prevent crush injuries if the vehicle were flipped over.[130]

Although mine-protected vehicles limited the damage caused by AT mines, the preferable solution was to locate the mines before they caused damage. Clearing roads with conventional tactics was slow, demanded more manpower than the Rhodesians could spare, and exposed them to AP mines. Modifications to vehicles that spread the weight sufficiently so that it would not detonate a mine proved effective, but the guerrillas developed counter methods. Guerillas switched to non-metallic mines, which minimized their detectability.[131]

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[125] Croll, *The History of the Land Mines*, 115.

[126] Jon Unruh, Nikolas C. Heynen, Peter Hossler, *The political ecology of recovery from armed conflict: The case of landmines in Mozambique*, Political Geography Articles 22 (Published by Elsevier ,2003), 846, website, http://www.uwm.edu/Dept/Geography/faculty%20pubs/Heynen/Moz_Mines.pdf (accessed 7 November 2007).

[127] Croll, *The History of the Land Mines*, 115.

[128] Roy & Friesen, *Historical Uses of Antipersonnel Landmines,* 36.

[129] Croll, *The History of the Land Mines*, 115.

[130] Ibid, 115.

[131] Ibid, 117.

The U.S. had discovered that aggressive patrols limited mine attacks, but the Rhodesians had limited manpower, which made this tactic difficult to sustain. It was decided to isolate guerrilla support from neighboring countries by laying minefields along the border.[132] The Rhodesian Army laid six major minefields along the northern and eastern borders of Zimbabwe during the War of Liberation in order to prevent the movement of guerrillas operating from Mozambique and Zambia.[133]

By the end of the war, the border minefields were partially complete, but were of limited success. There was insufficient manpower to cover them effectively by observation and fire and guerrillas were repeatedly able to breach them.

In Rhodesia, offensive mining by guerrilla forces was never completely countered.[134] However, security forces were able to use mine-protected vehicles to project their power into the countryside. Although there were casualties, AP mines did not induce the same level of caution as the U.S. had experienced in Vietnam.[135]

Although extensive in scope, Zimbabwe's landmine problem has one positive side—the documentation of minefield records. Most of the documents were handed over to the Zimbabwe National Army (ZNA) by the Rhodesian army upon independence in 1980.

Although it was estimated that 2,500,000 antipersonnel landmines and 76,600 directional antipersonnel mines were planted in Zimbabwe, the actual number is still not known. Today it is estimated that there are around 1.5 million antipersonnel mines that are still polluting 210 square km of minefields, stretching for 700 km along the borders with Zambia and Mozambique.[136]

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[132] Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 36.

[133] United Nations Mine Action Service, *ZIMBABWE Joint Assessment Mission Report*, 15 February 2000, 4.

[134] Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 36.

[135] Ibid, 117.

[136] United Nations Mine Action Service, *ZIMBABWE Joint Assessment Mission Report*, 15 February 2000, 4.

11. Mine Use During the War in Afghanistan

Afghanistan is among the most mine-affected countries in the world. First used in Afghanistan during the Soviet occupation (1979-89), landmines and the related UXO contamination continued during the period of the pro-Soviet ruling government (1989-92), during fighting between various factions in 1992-95, and during the Taliban era from 1996 until September 2001. Some very limited contamination also continues as a result of military operations by and against the American-led coalition and also as a result of ongoing factional fighting.[137] The landmine reality has plagued the poor country for over 20 years, and has not only destroyed Afghanistan's rural and urban infrastructure but also scattered landmines and unexploded ordnance throughout the country in urban and commercial areas, towns, roads, irrigation systems, canals, farms and grazing land.

It was in Afghanistan that the world finally realized what landmines could do to noncombatants. Years after they were first planted, these munitions keep killing innocent persons. The magnitude of the problem in Afghanistan was beyond what even the most experienced of experts had seen before.[138]

This reality of hidden killers is an obstacle to the resettlement of the millions of internally displaced people and returning refugees. During the conflict, one-third of the population fled the country, with Pakistan and Iran sheltering a combined peak of more than 6 million refugees.[139] Hidden Mines and UXO prevent the return to normalcy for many of these victims, by denying access to farm and grazing land, shelter, and water, and preventing the rehabilitation of infrastructure critical to Afghanistan's recovery.[140]

In the war in Afghanistan, mines were an important weapon to both sides. Cordesman and Wagner stated that the Mujahideen estimated the number of Mujahideen soldiers and civilians killed or maimed by mines reached 25,000-50,000 persons. This

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137 *Afghanistan's Millennium Development Goals Report* 2005, 108 http://www.ands.gov.af/src/src/MDGs_Reps/FINALMDG%20%20REPORT%20_Saturday%201327.pdf (accessed 7 November 2007).

138 Monin & Gallimore, *The devil's gardens, a history of landmines*, 158.

139 Chawla Shalini, "Strategic Analysis," *A Monthly Journal of the IDSA* June 2000 (Vol. XXIV No. 3), http://www.ciaonet.org/olj/sa/sa_jun00.html (accessed 7 November 2007).

140 Khair M. Sharif, "*Hidden Killers in Afghanistan*," Mine Action Programme for Afghanistan, Journal of Mine Action, March 07 2006, 1, http://www.maic.jmu.edu/journal/9.2/focus/sharif/sharif.htm (accessed 7 November 2007).

fact shows the extent of the landmine's impact as the largest cause of Mujahideen casualties.[141] There has been a decline in the number of incidents of combatant casualties since 1979. Unfortunately, this has only shifted the burden; over 50% of all recent victims are children under the age of 18 years.[142]

While virtually all combatants in Afghanistan in recent decades are thought to have used mines, most were laid by Soviet and pro-Soviet Afghan government forces from 1979-1992.[143] The Soviets laid over 30 million mines (some estimates run as high as 50 million), including many non-metallic mines that were extremely hard to detect. The Soviets also made extensive use of booby traps, which were air dropped or scattered outside plotted minefields.[144] However, the Soviets decided against using anti-tank mines, because the Mujahideen had several times dug them up and used them against Soviet forces.[145]

Soviet mine warfare tactics became more sophisticated over time. They began to use Claymore-like mines—the MON-50s—which have a matrix of corrugated internal fragmentation material set in plastic explosive. They also used new PMN-5 mines and remote-controlled UMK mines. For the trails between Afghanistan and Pakistan, they used PMF-1 helicopter-dropped mines, similar to the American BLU-43B.[146] The Soviets even dropped booby-trapped explosives that detonated if touched, including bombs disguised as watches, coins, ink pens, matchbooks, clothing, compasses, toys and rocks.[147]

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141 Anthony H. Cordesman and Abraham R. Wagner, *Lessons of Modern War, Volume III: The Afghan and Falklands Conflicts*, (Boulder: Westview Press, 1990), 164.

142 *Afghanistan's Millennium Development Goals Report* 2005, 97, http://www.ands.gov.af/src/src/MDGs_Reps/FINALMDG%20%20REPORT%20_Saturday%201327.pdf (accessed 7 November 2007).

143 *Human Rights Watch Backgrounder Landmine Use In Afghanistan,* October 2001, 3, http://www.hrw.org/backgrounder/arms/landmines-bck1011.pdf (accessed 7 November 2007).

144 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 36.

145 Cordesman & Wagner, *Lessons of Modern War*, Volume III, 165.

146 Ibid, 165-166.

147 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 37.

But as mentioned above, a number of other countries provided at least fifty different types of mines to the combatant forces. Those mines identified in Afghanistan were of Belgian, Chinese, ex-Czechoslovak, Iranian, Italian, Pakistani, Singaporean, ex-USSR, United Kingdom, ex-Yugoslavian, and Zimbabwean manufacture. In addition, the United States provided landmines to Mujahideen fighters as part of U.S. covert assistance in the 1980s.[148]

Soviet regime forces took the targeting of food supplies to such an extreme (through widespread mining of agricultural areas and destruction of irrigation systems) that became impossible to differentiate between military targets and the civilian victims.[149]

The Soviets used mines to reduce movement between Pakistan and Afghanistan, to guard strategic points and to secure garrisons.[150] They also made heavy use of mines to interdict supply routes and the guerrilla trails that were used to support the Mujahideen in the field. This activity produced many casualties, but was relatively ineffective in reducing the flow of supplies.[151]

A Mujahideen commander described the suffering from mines: "Our great problem here is mines. There are mine fields all around the town and it is very difficult for us to attack. If we cannot find a way to clear the mines, the opposition can stand up to us."[152]

Although they had almost no mine-detecting and mine-clearing devices, the Mujahideen still had to cope with Soviet mines. They devised several interesting tactics to overcome the problem. These included driving herds through the minefields, throwing

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148 *Human Rights Watch Backgrounder Landmine Use In Afghanistan*, October 2001, 3.

149 Mcgrath, *Landmines and Unexploded Ordnance,* 61.

150 Cordesman & Wagner, *Lessons of Modern War, Volume III,* 164.

151 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 37.

152 Ibid, 37.

heavy rocks or materials, shooting at the mines from a distance, using mortars that fired small rockets dragging explosive cord or—the most incredible tactic—simply walking into them and accepting the loss of soldiers.[153]

The Mujahideen also made extensive use of mines, many of which were retrieved from Soviet minefields or supplied from external sources. Additionally, the Mujahideen were reported to have used unexploded Soviet bombs, forcing the Soviets to use combat engineers to clear mines from the start of the conflict. As the conflict progressed, the Mujahideen mining effort grew increasingly sophisticated. When the Soviets took the Mujahideen fortress at Zhawar on the Pakistani border, they found 6,000 AT and 12,000 AP mines. By 1984, Soviet publications warned that enemy mines could not be detected, and were concerned about the lack of adequate field-deployable technology for detecting mines.[154]

The Russians used dogs to locate those kinds of mines that were conventionally undetectable. The dogs were useful for the booby traps and mines but not for the mines buried deep under the ground.[155]

Some lessons both sides learned were that concealment and camouflage were critical, big AT mines were easy to spot, detection was no substitute for active neutralization and detonation, and the use of conventional mine detectors was ineffective. Soviet mining in Afghanistan did not prevent Mujahideen operations, but it caused substantial casualties and forced more careful Mujahideen planning and co-ordination.[156]

12. Mine Use During The Iran-Iraq War

Landmines were widely used during the Iran-Iraq War, as well. Iran was the first side to use landmines as the initial defender in the war. Iranians were very effective in using barriers and minefields, especially in the way they used the terrain as a means to channel the Iraqis into low-lying areas, and forcing them to engage in massive

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[153] Cordesman & Wagner, *Lessons of Modern War, Volume III*, 166.

[154] Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 37.

[155] Cordesman & Wagner, *Lessons of Modern War, Volume III*, 168.

[156] Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 38.

engineering efforts. In the later stages of the war, it was Iran that forced Iraqi forces to adopt a defensive posture. The Iraqis used AT and AP barriers, mines and fortifications.[157]

Minefields used in this war were useful in delaying troops, but the effect was very limited. They did not act as force multipliers or as substitutes for troops or active defenses. Iran showed on many occasions that penetrating those minefields and strong defenses was not a big deal—a problem the Soviets experienced in Afghanistan.[158]

Today, it is estimated that the number of landmines in Iraq (the majority laid during the Iran-Iraq War of 1980-1988) ranges from 8 to 12 million, not including UXO or other debris;[159] estimates of landmines lying in Iran are a bit higher than those of Iraq, numbering about 16 million.[160]

13. Mine Use During the Gulf War

Iraq's acquaintance with landmines was not limited merely to the war with Iran. They employed mines against Coalition forces after Iraq's 1990 invasion of Kuwait. The Iraqis made very good use of landmines due to the suitable terrain conditions and the pressing need resulting from the lack of natural obstacles. Iraqi forces made very good use of the delay between their invasion of Kuwait and the start of Operation Desert Storm by developing vast, well-planned minefields.

Iraq was known to have 10 million landmines—a mixture of old and modern[161]—in inventory at the start of the war, and more than 500,000 landmines were laid during Kuwait operations.[162] Iraq had imported huge quantities of mines, mainly from the Soviet Union (PMN, TM46, TM62, PT Mi Ba III, P2 Mk 3 and T72) and Italy (SB33,

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157 Anthony H. Cordesman and Abraham R. Wagner, *Lessons of Modern War Lessons of Modern War, Volume II: The Iran-Iraq War,* (Boulder: Westview Press, 1990), 449.

158 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 39.

159 Shiar Yousef, *IRAQ Insecurity for All*, Iraqi Al-Amal Association, 2, http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN018048.pdf (accessed 7 November 2007).

160 Khalil Dokhanchi, *The Landmine Situation in Iran: The Challenge of Accession to the Ban Mine Treaty*. The Muslim World; Oct 2004; Volume 94, Issue 4; Research Library, 525.

161 Croll, *The History of the Land Mines*, 118.

162 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 40.

VS50, TS50, V69, P40, VS1.6 and VS2.2)[163] and also produced copies of Italian, Yugoslavian and Russian mines.[164] They planned to achieve the same success that they had enjoyed during the war with Iran, by slowing Coalition forces and channeling them toward the minefields.

On the other side, according to the September 2002 GAO report "Information on U.S. Use of Land Mines in the Persian Gulf War," U.S. forces sent to the Gulf War theater of operations took more than 2.2 million land mines[165] with them. Although the use of landmines by the Coalition forces during the Gulf War was limited, the pre-operational period witnessed a USMC artillery battalion's laying of the first FASCAM (family of scatterable mines) minefield ever emplaced in combat, during defensive operations connected with the Battle of Khafji (29 January-1 February 1991).[166] This minefield was comprised of a total of 1314 GATOR munitions aiming to prevent the movement, withdrawal or reinforcement of Iraqi forces.[167]

Despite the GAO Report's claim that no non-self-destructing, or "dumb," landmines were used—and the reported number of self-destructing, or "smart," land mines used by the services totaling approximately 118,000[168]—up to 30 Iraqis each month are still killed or maimed by antipersonnel land mines laid by U.S. forces during the Gulf War in 1991, as well as by those left from the Iran-Iraq War. [169]

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163 Croll, *The History of the Land Mines*, 118.

164 E. J. Hogendoorn, *Fields of Nightmares, the Not-Yet Eliminated Global Landmine Industry,* Multinational Monitor, March 1998, 44

165 *Information on U.S. Use of Land Mines in the Persian Gulf War*, GAO Report number (GAO-02-1003), Sept. 2002, 2, Website http://www.gao.gov/new.items/d021003.pdf (accessed 7 November 2007).

166 *Landmines In The 1991 Gulf War: A Survey And Assessment*, By The Dupuy Institute, 4, http://www.dupuyinstitute.org/pdf/m-4minesgulfwar.pdf (accessed 7 November 2007).

167 Croll, *The History of the Land Mines*, 121.

168 *Information on U.S. Use of Land Mines in the Persian Gulf War,* GAO Report number (GAO-02-1003), September 2002, 3.

169 Eugene Carroll & Rachel Stohl, *Another War, Another Round of Land Mines?* Christian Science Monitor, February 18, 2003 Edition.

According to U.S. service records, of the 1,364 total U.S. casualties in the Gulf War 81 (6 percent) were killed or injured by landmines. Of these casualties, none was blamed on U.S. landmines; rather, all were attributed to Iraqi or unknown types of landmines.[170]

Planning for Desert Storm revealed that the existing clearing capabilities of allied forces were limited in their ability to breach modern minefields. Although the extensive Iraqi minefields and barrier systems in the Marine Corps Central Command (MARCENT) and VII Corps sectors were judged to be formidable obstacles to the Coalition offensive prior to the ground phase, they were in fact easily breached and overcome.[171] This was achieved thanks to the response of Coalition forces by means of existing mine-clearance tools and the development of new mechanical obstacle-reduction methods supported by ground and air firepower.[172]

For example, the British Army fielded the Giant Viper, a rocket-propelled explosive hose capable of clearing a path 185m long and 7.5m wide through a minefield. Later on they developed the Aardvark flail half-tracks. In order to gain the capability of countering the magnetic mine threat they developed MIMIC (magnetic-influence mine-clearance device) flails and fitted them to the engineer tanks.

For their part, the Americans had M154 triple-shot line charge, capable of clearing a 300m by 8m lane.[173] The U.S. Army depended heavily on mine rollers and plows when breaching suspected minefields. Some of the countermine tools and systems used were half-tracks with flails, armored combat earth movers (ACE), combat engineer vehicle (CEV) mine rakes, rocket-assisted explosive hoses, battalion countermine sets, fuel-air explosives and systems that shot line charges across minefields.[174]

All this equipment for breaching minefields and other entanglements showed the value of committed minefield-crossing and obstacle-reduction capability. But mechanical

[170] GAO Report (GAO-02-1003), 3.

[171] *Landmines In the 1991 Gulf War: A Survey and Assessment*, By The Dupuy Institute, 16, http://www.dupuyinstitute.org/pdf/m-4minesgulfwar.pdf (accessed 7 November 2007).

[172] Croll, *The History of the Land Mines*, 120.

[173] Croll, *The History of the Land Mines*, 119.

[174] Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 40.

systems usually lacked the mobility necessary for on-time support to advancing forces, decreasing their importance for the operation. Breaching by air bombing was also ineffective. Bombing met with only limited success because the bombs did not follow a straight path through enemy minefields, and made proofing with plows and rollers difficult. They also left metal fragments that interfered with mine detection.[175]

Iraqi minefields were ineffective because they were neither aggressively defended nor linked to a realistic appraisal of Coalition capabilities. As the Israelis discovered during the Yom Kippur War, the Iraqis found that barrier minefields were effective only to the extent that they were actively defended and used to enhance other weapons.[176]

After suffering through the war, Kuwait is free of the landmine threat today, which is illustrative of the problems facing mine clearance in other areas of the world. Kuwait is the only battleground where all the mines were cleared, almost exclusively by foreign troops or commercial contractors paid by the Kuwait government.[177] Lacking these benefits of international help and available money, other less-favored countries remain plagued by their "forgotten" mines.

14. Countermine Actions

a. Countermine Actions in Ancient Times:

There are several stories about how the art of de-mining started in ancient times. Most historians relate countermining to the same kind of tunneling efforts. This was a long and tiring process, probably the most dangerous military action throughout ancient times. Without knowing what they would encounter down in their tunnels, many courageous de-miners/sappers dug the earth surrounding city walls or their own compounds. They were trying to find if the enemy was digging under their fortifications and if yes, where exactly that enemy was. These ancient warriors devised very bright methods to uncover such mining efforts.

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[175] Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 41.

[176] Ibid, 41.

[177] Ibid, 122.

One of the best examples of this warfare was described by Schnek,[178] who states:

> The original countermines were tunnels dug by besieged defenders to disrupt enemy mining efforts. A countermine was successful when an enemy tunnel was intercepted. Inevitably, a confused, close-quarters fight in the dark followed, as the two sides fought to control the tunnel. One example of this occurred during the siege of Barca about 510 B.C. The Persians excavated underground tunnels that reached the walls. Among the Barcaeans there was a skilled worker in brass who took a brazen shield and, carrying it round within the wall, applied it here and there at places where he thought the workings might be. Where there were no mines the shield was silent, but at places near mining operations the shield made a vibrating sound.

This might called to be a countermining effort, by which the Barcaeans were able to find the miners and slay the men they found in the mine tunnels.[179]

In ancient times, driving miners out of the tunnels was a big issue. Defenders of cities sometimes fought the attackers directly, and sometimes avoided fighting them by using clever methods. In other strange examples, some defenders tried to observe the activities of the offenders and developed other type of counterattacks.

One example is the defense of Ambracia, by Fulvius. The besieged forces, noticing earth excavated from the attackers' mine galleries, carried on defensive mine action by meeting the attackers' mines with their own tunnels; thereupon, the defenders filled their tunnels with smoke by burning feathers in a cask made of sheet iron.[180] (See Figure 3 below.)

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178 Schneck , *the Engineer Bulletin July 1998*.

179 Toy, *A History of Fortification, From 3000 BC to AD 1700*, 23.

180 Barton, Doyle & Vandewalle, *Beneath Flanders Fields*, 29.

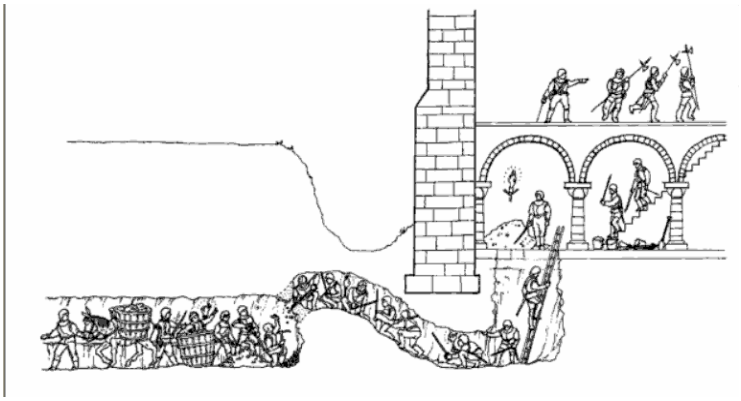

Figure 4. Tunnel fights

Some defenders diverted watercourses into the tunnels (e.g., the siege of York in 1644 and during WWI); some introduced tigers, bears, and hives of angry bees into the enemy galleries (e.g., the siege of Themiseira by Mithridates in 68 B.C.) In some cases, forms of asphyxiating gas were used.[181]

Another method used as a countermine measure was the fosse. The fosse was a dry moat or ditch dug down to the bedrock outside the city wall and earthen rampart. It allowed the defenders to actually see the tunnel miners from a distance, and was very discouraging for the potential tunnel miners. Defenders built deep walls inside the fosses when possible, resorting to wooden walls if they could not construct a stone wall. The plan for wooden walls was to set the wall on fire if the presence of miners was detected or suspected, in order to kill them either by smoke or fire.[182]

In the first application of explosive countermines during the siege of Belgrade,[183] the objective was to excavate a countershaft just of the mine tunnel, then place and detonate explosives to collapse the tunnel and destroy the mine layers inside. This type of explosive countermine was used up to World War I.

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181 Barton, Doyle & Vandewalle, *Beneath Flanders Fields*, 7.

182 Lawrence E. Stager and Philip J. King, *Life in Biblical Israel*, (Louisville: Westminster John Knox Publishing, 2001), 233.

183 Heineman , *A History of Fortification, From 3000 BC to AD 1700*, 99-100.

b. Countermine Actions during the 19th-20th Centuries:

Croll stated that during the American Civil War, Union troops devised a new way to disrupt the mines by using artillery bombardment. It worked well by cutting the electrical cables of the mines.[184]

The first documented manual breaching is thought to have been made in the American Civil War by Colonel Edward Serrel's 1st New York Volunteer Engineers at Fort Wagner, South Carolina in August and September of 1863.[185] On 27 August 1863, the sappers tried to dig their way through the minefield laid by the Confederate Army[186] using traditional siege warfare techniques. It was their first exposure to the mine problem. The sappers devised a solution to render the mines safe by boring holes through the casings and pouring water inside. For mines at a distance from the sappers, sharpshooters were used in an attempt to explode the mines from a distance. But mine-clearance efforts were not always innocent. Sometimes the sappers forced the POWs to find and dig the mines out.[187]

Over time, the inventions came one after the other and engineers decided to use the protection of armor for the mine-blast action. Their first choice was the tank itself. By attaching strong, thick and spoon-like parts to the front of the tanks they achieved some success with removal of buried mines. Toward the end of the First World War, the French mounted a plow on their Renault FT-17 tank.188 However, the first recorded combat use of the plow on tanks was not until D-Day in 1944, when the British 79th Armored Division employed a "Bullshorn" plow on a Churchill tank at Sword

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184 Croll, *The History of the Land Mines*, 12.

185 Jane's Website, http://www8.janes.com/Search/documentView.do?docId=/content1/janesdata/yb/jmmc/jmmc0926.htm@current&Selected=allJanes&keyword=THE%20POLISH%20mine%20detector&backPath=Website, http://search.janes.com/Search&Prod_Name=JMMC& (accessed 7 November 2007).

186 Stuart Maslen, *Anti Personal mines under Humanitarian Law, A View from the Vanishing Point,* (New York: Intersentia, 2001), 5.

187 Milton F. Perry, Infernal Machines, *The Story of Confederate Submarine and Mine Warfare* (Louisiana State University Press, 1965), 58-60.

188 MedLibrary.org, Website, http://www.medlibrary.org/medwiki/Mine_plow (accessed 7 November 2007).

Beach.[189] The Bullshorn was just one of various designs of plow that were tested and used by the British.190 Modern versions used by most countries, including the United States, are based on an Israeli design. The highly successful full-width mine rake was first developed and used by the United States during Operation Desert Storm.191

Detectors: It was not always possible to find enough tanks to clear the minefields all across the battlefront. Engineers and other technicians began to experiment on other "mobile" instruments. One such development, and the most effective, was the "mine detector." However, the genesis of mine detectors is somewhat uncertain. While Jane's claims that the mine detector was first used by the British in 1932,[192] most historians think that it was invented by Jozef Stanislaw Kozacki, a Polish signals officer.[193] Croll states that,[194]

> The mining of the beaches had several unexpected consequences. As the defense of Britain became more organized it became necessary to move or to re-lay minefields. The laying of the original fields was so poor that entirely new methods of clearance, laying and accurate recording had to be devised. The difficulties of locating buried mines in the shifting sands of the beach prompted the War Office to issue specifications for a mine detector during the winter of 1941/42. The design accepted was submitted by Lieutenant Jozef Stanislaw Kozacki, a Polish signals officer who had escaped to France and then to Britain in 1940. The Polish detector saw service throughout the war and the Mark 4C version was still used by the British Army until 1995."

Another writer, Modelski argues that this was not the first mine detector but only an improved version of a model invented in 1937. Modelski states:**195**

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189 Schneck , *The Engineer Bulletin*.

190 Med Library Website.

191 Schneck , *The Engineer Bulletin*.

192 Jane's Website, http://www4.janes.com/subscribe/jmmc/doc_view.jsp?K2DocKey=/content1/janesdata/yb/jmmc/jmmc0926.htm@current&Prod_Name=JMMC&QueryText=#toclink-j0010260001719 (accessed 7 November 2007).

193 John Alger, *Hell on Earth (1939-1945)*, (Bloodstone Press, 2003), 9, http://www.bloodstone-press.com/HEpreview.pdf (accessed 7 November 2007).

194 Croll, *The History of the Land Mines*, 54.

195 Tadeusz Modelski, *The Polish Contribution to the Ultimate Allied Victory in the Second World War*, 221.

> At the end of 1941, the technical unit of the Polish General Staff in London introduced the British Ministry of War production to a new improved model (the old model was invented in Poland in 1937) of the mine detector constructed in Scotland in 1941 by the Polish engineer, J. Kosacki. The British authorities accepted it as the best one of its time, praising the Poles, and ordered mass production, under the name of "Mine Detector Polish Mark I". All of the British Army was issued with the detector; 500 mine detectors were used by General B. Montgomery's Eight Army, to clear the terrain before the El Alamein attack.

This device had doubled the speed of the advancing British troops. It was both good for accuracy with comparison to making logical estimates of where the mines were and fast to detect the location of the mines.

According to "United States Army in World War II - The Corps of Engineers: Troops and Equipment" the first portable U.S. mine detector—SCR 625—was introduced early in 1942. During the same period,[196] the French, Italians, Russians, and Germans also had mine detection equipment for metallic mines, but details of those devices remain unavailable. During the interwar years, the French developed the first vehicle-mounted electronic mine detector on an R-35 tank.[197]

Today newer versions of those countermine devices are still used, but their variety, quality, durability and dependability have risen tremendously. But no single method can change the importance and effectiveness of manual mine clearance.

c. Manual Mine clearance

Manual mine clearance can be named as the real base of humanitarian de-mining. Although its origin can be found in the massive clearance operations to address the explosive remnants of the First World War, modern humanitarian de-mining can be traced to the mine-clearance efforts conducted in Afghanistan in 1988, after Soviet forces withdrew.[198]

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196 Blanche D. Coll, Jean E. Keith and Herbert H. Rosenthal, *United States Army in World War II - The Corps of Engineers: Troops and Equipment*, 1975, 468. http://www.usace.army.mil/publications/misc/un21/c-20.pdf (accessed 7 November 2007).

197 Schneck, *The Engineer Bulletin*.

198 Geneva International Centre for Humanitarian De-mining, 7.

De-mining programs in Cambodia, Angola and Mozambique followed the creation of the Afghanistan effort. Today, there are more than 42 programs worldwide, which have developed a framework of support ranging from the development and implementation of international standards to technical and logistical support for the implementation of mine-action programs.[199]

d. Military De-mining vs. Humanitarian De-mining:

There are two kinds of de-mining. First and oldest is military de-mining; the second is humanitarian de-mining. De-mining had not been a concern of any civilian or non-profit organization until the 1980s.

Military De-mining: Armed forces of governments have been encountering mines all around the world for some time now. It is a difficult and painstaking job to clear them away. From the military point of view nothing is more important to a commander than being able to direct his troops freely on the battlefield. In order for a commander to have this capacity, he needs to be sure he has a clear path in front of his troops. This is available only by using tools and techniques to detect and clear the mines along the way. Depending on the situation and phase of the war, units may simply bypass an area. Most times, however, troops need to use the straight (contaminated) path, so detection and neutralization is required.

De-mining is one of the riskiest of all combat-related operations. The de-miner risks his life in order that his comrades may advance and continue fighting the war.

Attention had not been given to the mine problem from a military perspective until the 20th century. The extent of the problem caused by these killers was simply not appreciated in previous centuries. Stolfi states that the United States and European armies paid less attention to the potential problems of defending against landmines than did the French, German and Italian armies. The latter group paid significant attention to countermine warfare, so that they entered the Second World War with specialized metal detectors. Despite the huge effort to devise better and more comprehensive countermeasures against mines, the effectiveness of those weapons was

[199] Geneva International Centre for Humanitarian De-mining, 7

increased only after the middle of 1940. At that time various armies, especially those engaged in the European area, vigorously carried out research and development programs in mine detection, clearance and neutralization.[200]

Humanitarian De-mining: Humanitarian de-mining is a comparatively new name for the effort, but accepted by international entities. It makes a good impression for incentivizing and motivating governments, agencies and international non-profit organizations.

The humanitarian de-mining area has several factors that are not present in the other mine-action areas:

First there is no an imminent necessity to clear the contaminated area. Clearance requires comprehensive planning, funding, training and coordination of all efforts.

Nor is humanitarian de-mining a specific operation for a definite part of the world, instead being conducted globally. The number of people involved and amount of effort is significantly more than that of the military actions.

Humanitarian Mine Action has its own evolution period. According to "*A Guide to Mine Action*,"[201] this evolution period can be phased as follows:

C. PHASES OF HUMANITARIAN DE-MINING IN THE 20TH CENTURY:

1. Initiation of Mine Action—the Afghanistan Case

The real origin of today's humanitarian action began first with the U.N.'s appeal for funds for the landmine problems that Afghanistan had been suffering up to that time (October 1988). This may be called the beginning of a new era in the fight against the landmine problem. Prior to the U.N. appeal, only the national militaries dealt with the landmine reality. The challenge facing humanitarian operations was different than that of previous military minefield-breaching activities. This time the aim was not a military

200 Stolfi, *Mine and Countermine Warfare in Recent History, 1914-1970,* 21.

201 *A Guide to Mine Action, 2nd edition,* GICHD, Geneva, January 2004.

advance but the total relief of a region from the incredible extent of landmine contamination. People were deprived of almost all basic life needs, transportation, supplies and all other kinds of services.

The U.N. decided to use a new term—'humanitarian de-mining'[202]—for the new kind of effort. It was new because it aimed not only for removal of the landmines buried under the ground but also for information and education activities to prevent injuries.[203]

The U.N. decided to begin the "humanitarian de-mining' action by giving mine-clearance training to the 10,000 volunteer Afghan refugees in Pakistan, via the assistance of military contingents from donor countries.[204] The U.N. also decided to support the creation of a number of Afghan NGOs to survey, map, mark and clear landmines and UXO, and to conduct mine awareness for the civilian population.

2. The Birth of International Mine Action—NGOs

As mentioned earlier the devastation in Afghanistan was so huge that no country or agency could hope to deal with the whole problem individually. Because of this some groups came up with an idea to found new organizations—Mine Action NGOs—to help the efforts of the U.N. to overcome the landmine problem.

The first NGO founded to fight the landmine problem was the Hazardous Area Life-Support Organization (HALO Trust) in 1988. The founder of HALO Trust was former British officer Colin Mitchell.[205] About a year later, another former British soldier, Rae McGrath, founded another NGO: the Mines Advisory Group (MAG).

After the initiation of the humanitarian mine action by NGOs, the pace of increase in participation increased significantly. Agencies like Handicap International began to join (in 1992) the joint effort by providing humanitarian support to the landmine victims. Handicap International also made an alliance with MAG to set up its first two de-mining programs in Cambodia and northern Iraq, and took part in the creation of the

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202 *A Guide to Mine Action, 2nd edition,* GICHD, Geneva, January 2004, 21.

203 Ibid, 21.

204 Ibid, 21.

205 *A Guide to Mine Action, 2nd edition,* GICHD, Geneva, January 2004, 22.

International Campaign to Ban Landmines (ICBL).[206] Norwegian People's Aid (NPA) has also been involved in mine action since 1992. It first became involved in mine action in Cambodia and has since been operational in 16 countries on three continents.[207] These contributions have been increasing the support for the international humanitarian mine action for almost 25 years.

3. The Birth of Commercial De-mining Companies

As the demand for landmine clearance increased, the supply side did not remain the same. Many retired-military bomb specialists began to setup private companies to enter the mine-clearance business.

Probably the first and the biggest contract to be won was for the clearance of mines laid by Saddam's soldiers prior to Iraq's withdrawal from Kuwait. Kuwait awarded this contract to a number of commercial de-mining companies. Seeing the opportunities for the de-mining industry, many private mine-clearance companies such as BACTEC, European Landmine Solutions, Mechem, Mine-Tech and Royal Ordnance were founded.

Table 1 shows the origins of Countermobility Equipment according to Jane's.

Table 1. Origin Of Countermobility Equipment [208]

Mine/Fuse Type	First Prototype	First Production	First Combat Use
Tunnel mining			Assyria, *circa* 1000BC
Caltrops		China	China, *circa* 1000BC
Explosive tunnel mines			Florence, 1403
Self-contained AP mine	China, 1277	China, 1277	China, 1277
Electric command detonation mine	Russia, 1829	Sweden (Nobel), 1867	Russia, siege of Silistria
Blast AT mine	Germany, 1917	Germany, 1918	Germany, Western Front 1917
Bounding AP mine	Netherlands, late 1600s	Russia, 1904	Russia, Port Arthur, 1904
Chemical mine	UK, WWI	Germany, WWII	Iran, Iran-Iraq War, 1980s
Flame mine	Confederacy, 1864	USSR, 1943	USSR, Kursk, 1943
Mechanical booby traps	China, 210 BC	Confederacy, 1864	China, 1277
Side-attack AT mine	Germany, 1943	USSR, 1943	Germany, Eastern Front, 1943
Full-width attack AT mine	Germany, 1918	Russia, WWII	Germany, 1918
Fixed-wing air scattered AP mine	Germany, 1930s	Germany, 1930s	Germany, Polish Campaign, 1939
Fixed-wing air scattered AT mine	USA, 1950s	USA, 1960s	USA, Southeast Asia, 1960s

206 *A Guide to Mine Action, 2nd edition,* GICHD, Geneva, January 2004, 22.

207 Ibid, 22.

208 Jane's Website, http://www4.janes.com/subscribe/jmmc/doc_view.jsp?K2DocKey=/content1/janesdata/yb/jmmc/jmmc0926.htm@current&Prod_Name=JMMC&QueryText=#toclink-j0010260001719 (accessed 7 November 2007).

Helicopter scattered AP mine	USA, 1950s	USA, 1960s	USA, Southeast Asia, 1960s
Helicopter scattered AT mine	USA, 1970s	USA, 1975	USSR, Afghanistan, 1980s
Tube artillery scattered mines	USA, 1970s	USA, 1970s	USA, Gulf War, 1991
Rocket artillery scattered mines	USSR, 1970s	USSR, 1970s	USSR, Afghanistan, 1980s
Vehicle scattered mines		USA, 1970s	
Manpack scattered mines		USA, 1990s	
Radio-controlled mines	WWI	USSR, 1941	WWI
Tilt-rod fuse	Germany 1918	USSR, 1941	Germany 1918
Daisy-chained mines	France, 1812	Germany, WWII	Siege of Badajoz
Coupled mines	Germany, 1942	Germany, WWII	Germany, North Africa, 1942
Boosted mines	Germany, 1942		Germany, North Africa, 1942
Breakwire fuse		USA, 1960s	USSR, Afghanistan
Tripwire fuse	Germany, 1573	Germany, 1939	Germany, 1500s (?)
Railway mine	Confederacy, 1862	Germany, WWII	Confederacy, Civil War, 1862
Electronic booby trap		Yugoslavia, 1980s	Former Yugoslavia, 1990s
Low metal mine	Finland	Finland, 1939	Finland, 1939
Influence fuse	Germany, WWII	USSR, WWII	USSR, WWII
Anti-handling devices	Germany, 1918	Germany, 1930s	Germany, 1918
Mechanical mine layer	UK, WWII	USSR, post WWII	Egypt, 1973 Arab-Israeli War (?)
Blast hardened mines		Italy, 1980s	Mujahideen, Afghanistan, 1980s
Anti-helicopter mine	Viet Cong, Vietnam War		Viet Cong, Vietnam War
Integral electronic anti-handling device		U.S., 1975	U.S., Persian Gulf War, 1991

Table 2 shows the origin of Mobility Equipment according to Jane's Data.

Table 2. Origin of Mobility Equipment[209]

Equipment	First Prototype	First Production	First Combat Use
Bangalore torpedo	U.K., 1912		U.K., Western Front, WWI
Tank mine roller	U.K., 1918	U.S.S.R.	U.S.S.R.,
Tank mine plow	France	U.K.	U.K, Sword Beach, WWII
Electronic mine detector	France		Germany, Polish Campaign, 1939
Vehicle-mounted electronic mine detector	France, Pre-WWII	U.S.	U.S.
Flail	U.K., 1942	U.K., 1943	U.K., 2d El Alamein, 1942 (24 prototypes were used in this battle.)
Remote-control breaching	France	Germany, 1940	Germany, Sevastopol, 1942
Demolition snake	Canada		U.S., Anzio, May 1944
Projected line charge	U.K., 1944	U.K., 1944	U.K., Calais, September 1944
Mine-resistant wheeled vehicle	U.K., 1941	Sweden, 1940s	U.K., North Africa, 1941
Scatterable mine-clearing system	France, 1980s	Israel	
Full-width mine rake	U.S., 1990	U.S., 1990	U.S., Gulf War, 1991

209 Jane's Website, http://www4.janes.com/subscribe/jmmc/doc_view.jsp?K2DocKey=/content1/janesdata/yb/jmmc/jmmc0926.htm@current&Prod_Name=JMMC&QueryText=#toclink-j0010260001719 (accessed 7 November 2007)..

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III. FUNDING OF DE-MINING

A. GENERAL

Ironically, the hardest part of mine action is providing necessary funds to carry on clearance and other contamination-related operations. Although considerable effort has been made by several organizations and agencies, there are still significant budget shortfalls.

While estimates of the cost of complete global de-mining vary, everybody agrees on one thing—the cost will be huge.

While it costs just $3[210] to purchase a landmine, it costs $300 to $1,000 to clear the same mine.[211] Assuming a round figure of one hundred million for the total number of emplaced landmines, clearance alone will cost at least $30 billion. This figure excludes all other mine-related operations. No country or organization in the world can cope with this enormous financial constraint alone. Besides, the cost of global mine clearance unfortunately increases as the use of landmines continues in some countries. For example, according to United Nations Report of the Secretary-General,[212] while the international community mobilized around $70 million to clear almost 100,000 landmines in 1993, two million more mines were laid during the same period, which constituted an annual "de-mining deficit" of about 1.9 million mines, adding to the cost of clearance.

The financial constraint paved the way toward a globally organized approach to find the necessary funds at least for vital areas such as important supply routes, ports, transportation lines, and agricultural fields that are indispensable for poor farming families.

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210 $3 (Commonly quoted in International Campaign to Ban landmines (*Landmine Monitor*) literature in the lead up to the 1997 Ottawa Treaty banning anti-personnel landmines. The $3 price is understood to be the price of one of the simplest anti-personnel blast mines, the Chinese Type 72A.

211 United Nations Report of the Secretary-General, General Assembly A/49/357, 6 September 1994, Website http://www.dev.mines.gc.ca/VII/VII_J_xxv-en.asp, (accessed 30 September 2007).

212 Ibid.

While most people consider mine clearance efforts to be a responsibility of local governments, the reality is actually just the opposite. This is because most affected countries did not cause the contamination of their own homeland; contamination was caused by external forces. Besides, almost all mine-affected countries are developing nations, with economies disrupted by several wars or internal conflicts and inadequate resources to manage the devastating effects of landmines through mine clearance and other mine-related operations.

Making the situation worse, the number of countries seeking mine clearance assistance is growing, increasing the drain on funds from a limited pool of resources.[213] These countries expect the international community to help them rid themselves of this plague. Most believe that the governments who contaminated the environment should share the burden of its cleanup. Rae McGrath explained the financial dilemma of mine clearance during his Nobel Prize lecture:[214]

> Tens of millions of dollars spent annually on mine clearance pale in comparison to the hundreds of billions spent on the military. In 1995 alone the military expenditure by European Union nations was more than US $166 billion - in the same year world military expenditure was over US $695 billion. Based on these figures it would seem that the military, who are responsible for the laying of landmines, are a polluter who can afford to pay the price of clearance.

Besides, the Ottawa Convention has brought about a built-in duty of team spirit among State Parties, making loyalty to the treaty attractive to mine-affected countries. The Convention specifies that[215] donor States may provide assistance directly to mine-affected States or through organizations working in these countries, such as United

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213 "Capacity Development for a Safer World" Report by United Nations Development Program, 6, Website http://www.undp.org/cpr/documents/mine_action/training/Brochure_Reference.pdf, (accessed 1 October 2007).

214 Rae McGrath, "A Matter of Justice & Humanity," Nobel Lecture, Oslo, December 10, 1997, on behalf of the International Campaign to Ban Landmines, Website http://nobelprize.org/nobel_prizes/peace/laureates/1997/icbl-lecture.html , (accessed 1 October 2007).

215 U.N. Website. Convention on the prohibition of the use, Stockpiling, production and transfer of Anti-personnel mines and on their destruction, Article 6.4. http://www.un.org/Depts/mine/UNDocs/ban_trty.htm (accessed 1 October 2007).

Nations agencies, the International Committee of the Red Cross (ICRC), mine action NGOs or other institutions.[216] This issue was addressed in the convention as:

> Each State Party in a position to do so shall provide assistance for mine clearance and related activities. Such assistance may be provided, inter alia, through the United Nations system, international or regional organizations or institutions, non-governmental organizations or institutions, or on a bilateral basis, or by contributing to the United Nations Voluntary Trust Fund for Assistance in Mine Clearance, or other regional funds that deal with de-mining.

It is estimated that States party to the Convention on the Prohibition of Anti-personnel Mines have contributed more than U.S. $1.2 billion for mine-clearance, stockpile destruction, victim assistance and other mine action activities; more than U.S. $190 million of this amount has been generated by mine-affected State Parties themselves. The combined contribution since 1997 of States not party to the Convention totals over U.S. $550 million.[217] But ICBL Representative Rae stated that the overall cost of destruction of landmines will be billions of dollars, if sustainable methodologies are employed and emphasis is placed on developing an indigenous capacity in each affected country.[218]

Initiating a large-scale clearance operation is much more expensive than it appears. Almost all de-mining projects around the world (excepting Kuwait and Kosovo) experienced significant funding shortfalls. When any program officer contemplates sustaining the initial efforts, he should consider various factors all through the lifecycle of the project, not just for the initial phases. Sustaining a de-mining program from start to finish is deemed to be extremely complex and painstaking.

While considering the costs, it is easy to miss the cost of the infrastructure, de-miners' wages, accommodation of de-mining teams, and clothing, feeding and adequately equipping them for their task. De-miners must have transport and medical facilities on-

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216 ICRC Fact Sheet, *Ending the Landmine Era, Mine Action Funding*, http://www.icrc.org/Web/Eng/siteeng0.nsf/htmlall/nairobisummit_res/$File/Mine%20Funding%20Action%20ENG.pdf (accessed 1 October 2007).

217 ICRC Fact Sheet, *Ending The Landmine Era, Mine Action Funding*.

218 McGrath, "A Matter of Justice & Humanity."

site and available at all times. Many other administrative and other services support de-mining efforts, each drawing upon the financial resources of the parent organization.[219]

B. DONORS

There is a big discussion over who pays for what and where the funds are spent. But this does not mean there is an unbeatable problem to collect the necessary funds. Although it is not so simple, it is still the way this campaign against landmines is fought.

There are several sources to find the necessary funds for de-mining efforts. The funds are mostly provided by:[220]

- International aid funds (a significant part of funds raised for de-mining efforts is transferred by third-party funding mechanisms. In 2005, trust funds received almost one third of the total contributions.[221])
- In-kind support from international aid donors
- Direct host government support and funding
- Indirect host government funding
- The use of military personnel in demining operations
- Other wealthy donor governments
- The United Nations or other international organizations
- In some cases from benefactors and philanthropists

This does not mean that fundraising efforts are limited only to the aforementioned entities. De-mining NGOs may also raise funds directly from private and public sources or from public collections. Funds raised during the campaigns may be held in trust funds or any other dependable account.[222]

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219 Jane's Mines And Mine Clearance, Background Information - The Structure Of A Demining Organization Date Posted: 20-Aug-2007, http://www8.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/yb/jmmc/jmmc0015.htm@current&Selected=allJanes&keyword=demining&backPath=http://search.janes.com/Search&Prod_Name=JMMC&#toclink-j0010260002529 (accessed 16 October 2007).

220 James Trevelyan. "The Mine Action Process," *Journal of Mine Action*, Issue 4.3, http://maic.jmu.edu/journal/4.3/process.htm (accessed 16 October 2007).

221 Landmine Monitor 2006 Report, http://www.icbl.org/lm/2006/intro/funding.html#fnB188 (accessed 7 November 2007).

222 Guide for the management of de-mining operations, by United Nations Mine Action Service (UNMAS),IMAS 07.10, First Edition, 01 October 2001, 3, http://www.mineactionstandards.org/IMAS_archive/Amended/Amended3/IMAS%2007.10%20Guide%20for%20the%20management%20of%20demining%20operations%20_Edition%201_.pdf (accessed 1 October 2007).

Besides, the contractors and NGOs conducting the de-mining sometimes find their own funds in some programs. These funds are sometimes collected from national donors, private individuals, foundations, or from a number of organizations working under Private/Public Partnerships (PPPs).[223]

The difficulty in fund raising is that there is no guarantee that donors will keep giving in the same amount or for the same purpose. For example, the European Union announced the suspension of mine clearance funding for Angola in October 1999 due to the continued use of landmines in the country.[224] Another problem about fund collection is the donor countries' or other donors' preferences on whom the funds are allocated to. Some donor countries specifically ask their funding support for mines be used for the State Parties to the Mine Ban Treaty. Some of these donor countries are Canada, Germany and the Netherlands.[225] This fact hinders the international community from making effective coordination of the efforts and efficient program management.

Some donors prefer to have results within a relatively short period due to domestic political and financial pressure. Due to this pressure, some have invested in countries where funds are used for immediate need, not long-term development issues.[226]

Donor-related issues such as placing limitations, conditions and restrictions on the types of activities can unintentionally build additional costs and slow programs down.[227] From the recipients' point of view, unexpected increases or decreases in funding, or pressure for agendas that may not suit aid recipients' needs, ruins the whole effort.[228]

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223 Jane's Mines And Mine Clearance, Background Information - The Structure Of A Demining Organization Date Posted: 20-Aug-2007.

224 Andrea E. Ostheimer. Aid agencies: providers of essential resources?, 124, http://www.iss.co.za/Books/Angola/7Ostheimer.pdf (accessed 1 October 2007).

225 Land Mine Monitor 2006 Report.

226 "Capacity Development for a Safer World" Report by United Nations Development Program, 6, Website http://www.undp.org/cpr/documents/mine_action/training/Brochure_Reference.pdf , (accessed 1 October 2007).

227 "History, Summary and Conclusions of a Study of Manual Mine Clearance Report, Geneva International Centre for Humanitarian De-mining, August 2005. 7. http://www.gichd.org/fileadmin/pdf/publications/Manual_Mine_Clearance_Book1.pdf (accessed 1 October 2007).

228 Kjell Erling Kjellman, Kristian Berg Harpviken, Ananda S Millard & Arne Strand, Acting as one? *Co-ordinating responses to the landmine problem*, *Third World Quarterly, Vol 24, No 5, 2003,* 856.

Inline with the same problem, the report of the Secretary-General submitted to the United Nations Security Council on Angola[229] states that:

> Dependence on donor assistance has been extremely high in some specific sectors, including humanitarian assistance. Continued support from donors cannot be guaranteed, although a redirection of expenditures by the Government towards the social sectors will make it easier to advocate for complementary funding from the international community. Many donors are still waiting to see if key strategy documents, such as the Interim Poverty Reduction Strategy Paper, will provide a clear policy direction. The International Monetary Fund has been unable, under its rules, to consider lending to Angola without the successful implementation of the necessary reforms.

Some other probable problems with the donors are: [230]

- The donors sometimes become reluctant to assist in projects taking place during an ongoing conflict and in certain other cases
- Funding is discontinued right after the donor's initial interest fades away
- In some situations where countries have not agreed to ban landmines and no comprehensive stockpile destruction is allowed to take place, donors may become doubtful and decide to cut funds

Global mine action funding of donors from 1992 to 2005 is shown in Table 3:[231]

The Global Humanitarian Assistance 2006 Report estimates the figure at much less ($214 Million[232]) than does Landmine Monitor ($376 Million).

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229 United Nations Security Council, Report of the Secretary-General to the Security Council on Angola, S/2002/834, 26 July 2002, 7, http://www.globalpolicy.org/security/sanction/angola/2002/0726sg.pdf (accessed 1 October 2007).

230 Geneva Call, *A Global Report of NSA Mine Action*, (Geneva: Geneva Call, 2006), 34, http://www.genevacall.org/news/testi-press-releases/gc-16nov2006-nsanews.htm (accessed 1 October 2007).

231 Landmine Monitor 2006 Report.

232 Global Humanitarian Assistance 2006 Report, 11, U.N. Office for the Coordination of Humanitarian Affairs, http://ochaonline.un.org/OchaLinkClick.aspx?link=ocha&docid=1039804 (accessed 10 October 2007).

Table 3. Global mine action funding, 1992-2005

Year	Amount
1992-95	$258 million
1996	$132 million
1997	$139 million
1998	$187 million
1999	$219 million
2000	$243 million
2001	$237 million
2002	$324 million
2003	$339 million
2004	$399 million
2005	$376 million*
1992-2005	$2.9 billion

Although total contributions of U.S. $376 million in 2005 looks less than that of 2004, this amount was the second highest international fund raised until 2005 and was $37 million more than 2003. But it cannot be disregarded that contributions in 2005 ($376 million total) are $23 million less than in 2004 (by almost six percent). Half of the top 20 donors contributed less in 2005: Austria, Belgium, Canada, Denmark, Finland, Ireland, Japan, New Zealand, United States and European Commission. The global decrease largely reflects big reductions from the two biggest donors: the European Commission (down $14.9 million) and the United States (down $14.6 million).[233]

The largest amounts of funds have been contributed by top four donors: United States, European Commission, Norway and Japan (for year 2005, the U.S. was first, European Commission second, Japan third and Norway fourth biggest donor for mine action).

While collecting data about actual mine action donations is extremely difficult, finding data on the recipients is further complicated. According to the ICBL 2006 Report, the largest recipients of mine action funding have been Afghanistan ($515 million since 1991), Cambodia ($256 million since 1994), Iraq ($253 million since 1993), Mozambique ($214 million since 1993), Angola ($177 million since 1993), Bosnia and

[233] Landmine Monitor, Toward a Mine-Free World, Executive Summary, 2006, 6, http://www.icbl.org/lm/2006/print/ES.pdf (accessed 16 *October 2007)*.

Herzegovina ($163 million since 1995), Kosovo ($93 million since 1999), Lebanon (more than $86 million since 2000), Sudan ($80 million since 2001—more than tripled in 2005 compared to 2004), and Laos ($69 million since 1994).[234]

It is obvious that global de-mining donations started to decrease as other aid and development issues (such as poverty relief and disease management) took priority.[235] Three of the largest decreases in de-mining contributions have been in Iraq with 53 percent, in Afghanistan with 27 percent (Jane's gives this figure as 25 percent)[236] and in Cambodia with 43 percent in 2005.[237]

C. COORDINATION OF RESOURCES FOR MINE ACTION

According to Land Mine Monitor,[238] several bodies coordinate the available mine action resources. These bodies are as follows:

- The Mine Action Support Group (MASG), chaired by Switzerland in 2005, by the U.S. in 2006 and by the U.S. again in 2007,239 consists of 27 donors. MASG usually meets three times a year and produces a regular newsletter that has contained some information regarding mine action funding.
- The Steering Committee on Mine Action, chaired by UNMAS's director, includes representation by twenty-four donor states, and meets bi-annually.
- The Mine Ban Treaty's Resource Mobilization Contact Group (RMCG), led by Norway, was established with the intention of securing sustainable funding and promoting cost-efficient and effective mine action. A prominent issue for the RMCG during the reporting period was identifying the specific needs of States Parties that require assistance to meet Article 5's mine clearance deadlines.

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234 Landmine Monitor 2006 Report.

235 Jane's Mines And Mine Clearance, Background Information - The Structure Of A Demining Organization Date Posted: 20-Aug-2007, http://www8.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/yb/jmmc/jmmc0015.htm@current&Selected=allJanes&keyword=demining&backPath=http://search.janes.com/Search&Prod_Name=JMMC&#toclink-j0010260002529 (accessed 16 October 2007).

236 Ibid.

237 Landmine Monitor, Toward a Mine-Free World, Executive Summary, 2006, 6, http://www.icbl.org/lm/2006/print/ES.pdf (accessed 16 *October 2007).*

238 Ibid, 63.

239 U.N. Mine Action Website, http://www.mineaction.org/overview.asp?o=144 (accessed 16 October 2007).

Table 4. Overall Contributions of Top Mine Action Donor Countries year by year[240]

Country	2002	2003	2004	2005	(1992-2005) Total Amount
United States	$73.8 M	$80.6 M	$96.5 M	$81.9 M	$708.3 M
European Commission	$38.7 M	$64.5 M	$66.4 M	$51.5 M	$422.6 M
Norway	$25.4 M	$28.6 M	$34.3 M	$36.5 M	$255.6 M
Japan	$49.7 M	$13 M	$42.8 M	$39.3 M	$217.3 M
United Kingdom	$18.5 M	$20 M	$20.4 M	$21.4 M	$175.3 M
Canada	$15.1 M	$22.5 M	$22.6 M	$20.5 M	$148.1 M
Germany	$19.4 M	$22.1 M	$18.7 M	$21.1 M	$144 M
Netherlands	$16 M	$12.1 M	$19.3 M	$19.3 M	$133.9 M
Sweden	$7.3 M	$12.7 M	$11.4 M	$11.7 M	$126.6 M
Denmark	$10.6 M	$11.9 M	$13.7 M	$11.3 M	$109.8 M
Switzerland	$8.3 M	$8.8 M	$10.9 M	$12.1 M	$79.9 M
Australia	$7.8 M	$5.5 M	$5.7 M	$8.9 M	$75.1 M
Italy	$8.7 M	$5.8 M	$3.2 M	$4.5 M	$56.5 M
Finland	$4.5 M	$6.3 M	$6 M	$5.9 M	$52 M
United Arab Emirates	UAE dispersed the funds for Lebanon from 2002-2004 under Operation Emirates Solidarity				$50 M
Belgium	$3.6 M	$6.2 M	$5.7 M	$4 M	$31.5 M
France	$3.6 M	$2.5 M	$1.9 M	$3.8 M	$28.6 M
Ireland	$1.6 M	$2.3 M	$3 M	$2.2 M,	$16.3 M
Austria	$2 M	$0.9 M	$3 M	$2.2 M	$16.2 M
New Zealand	$0.8 M	$1.1 M	$2.5 M		$12.4 M
Slovakia			$3.5 M	$7.2 M	$10.9 M
Spain				$1.9 M	$10.1 M
Greece					$9.6 M

[240] Landmine Monitor 2006 Report.

Other countries	The total of $32.5 million for other countries includes China ($6.2 million), Luxembourg ($5.9 million), South Korea ($5.2 million), Slovenia ($3.8 million), Saudi Arabia ($3 million), Iceland ($2.8 million), Czech Republic ($2.1 million), Poland ($2 million), $1.5 million for other donors including Brazil, Hungary, Liechtenstein, Monaco, Portugal, South Africa, and others with lesser amounts **Total : $32.5 M**

Table 5. Contributions of Top Mine Action Donor Countries Since 1999

	2005	2004	2003	Total since 1999
Australia	$2,474,346	$1,943,452	$19,500	$7,771,029
Austria	$310,525	$280,628	$79,205	$1,865,172
Belgium	$1,349,243	$2,099,552	$936,921	$6,842,645
Canada	$1,927,938	$1,804,429	$513,766	$15,471,278
Czech Republic	$0	$15,944	$11,495	$182,154
Denmark	$0	$0	$108,060	$604,414
Finland	$659,797	$624,664	$0	$3,889,925
France	$1,020,818	$318,042	$304,323	$2,471,667
Germany	$16,669	$1,075,887	$27,156	$11,123,752
Hungary	$0	$0	$3,865,984	$33,910
Iceland	$1,500,000	$0	$31,000	$1,500,000
Ireland	$248,980	$0	$435,628	$2,699,936
Italy	$0	$0	$96,936	$5,946,804
Japan	$1,024,665	$186,616	$0	$7,342,748
Luxembourg	$62,245	$6,219	$854,036	$2,876,487
Netherlands	$675,847	$435,330	$495,603	$5,971,220
New Zealand	$240,109	$174,530	$163,044	$927,225
Norway	$6,138,818	$4,737,173	$5,532,700	$35,115,236
Poland	$0	$0	$0	$25,364
Portugal	$0	$0	$68,700	$285,946
Slovakia	$0	$0	$0	$35,477
Slovenia	$66,856	$49,698	$67,699	$751,414
South Africa	$0	$95,200	$59,536	$247,987
Spain	$267,653	$0	$323,663	$591,316
Sweden	$0	$0	$0	$226,677
Switzerland	$662,173	$112,000	$0	$2,309,083
U.S.	$18,530,130	$15,577,227	$13,501,388	$91,308,892
Total	$37,176,812	$29,536,591	$27,496,343	**$208,417,758**

Mine Victims Assistance Donations Data taken from Landmine Monitor 2005[241] and 2006[242] Annual Reports

The lead organization and agencies for the coordination of the efforts including the fund-raising will be explained in the next sections.

241 Landmine Monitor 2005 Report, http://www.icbl.org/lm/2005/intro/funding.html#fnB44 (accessed 1 October 2007).

242 Landmine Monitor 2006 Report.

D. ORGANIZATIONS/AGENCIES/MAJOR DONORS

1. U.N.

a. Resource Mobilization Mechanisms of U.N.

Funding for any appeal from any country is not as easy as it seems to be. Fund raising and fund allocation processes are conducted by U.N. offices coordinately, but separately. Besides, this procedure requires lots of control mechanisms and reviews by the subject area experts and financial accountants.

All new mine-related projects—provided that they aren't being governed by any U.N. mine-related program—are discussed with the Inter-Agency Coordination Group[243] (U.N. Department of Peacekeeping Operations (DPKO), U.N. Mine Action Service (UNMAS), U.N. Department of Disarmament Affairs (DDA), U.N. Development Program (UNDP), U.N. Children's Fund (UNICEF), U.N. Office for Project Services (UNOPS), Food and Agriculture Organization (FAO), Office for the Coordination of Humanitarian Affairs (OCHA), Office of the Special Adviser to the Secretary-General on Gender Issues and the Advancement of Women (OSAGI), Office of the U.N. High Commissioner for Human Rights (OHCHR), Office of the U.N. High Commissioner for Refugees (UNHCR), World Food Program (WFP), World Health Organization (WHO), World Bank) on Mine Action before being submitted for funding to the international community.[244]

Fund allocation begins with the first step of setting the priorities in "Steering Committee on Mine Action" by UNMAS' leadership.[245]

UNMAS is the main office to coordinate general mine action in the U.N. system. UNMAS makes sure that any probable country appeal is coordinated among UNDP and UNICEF country offices before it is funded.[246]

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243 *United Nations Inter-Agency Mine Action Strategy: 2006-2010,* 1, website, http://www.undp.org/cpr/documents/mine_action/role_undp/UN_IAMAS_online.pdf (accessed 1 October 2007).

244 *Resource Mobilization For Mine Action Through The United Nations,* 1, http://www.apminebanconvention.org/fileadmin/pdf/mbc/IWP/SC_may03/speeches_gs/RMCG_UN_role_final.pdf (accessed 1 October 2007).

245 Mine Action and effective coordination: the United Nations policy, 19.

246 *United Nations Inter-Agency Mine Action Strategy: 2006-2010, 7.*

To be able to effectively utilize the available resources, the U.N. developed a Fund Portfolio system known as "portfolio of mine-related projects (PMAP)."[247] PMAP is updated every year to be used as a reference document by all the stake holders. It shows proposals on all the mine-related aspects of mine affected countries (U.N. supported). This document has a very effective use to attract the new eager donors and convince the former or current donors during donor meetings and conferences on pledging.

Appealing agencies are the national authorities, nongovernmental organizations, international organizations, and U.N. entities that appeal for funding for mine action activities. As for the 2006 Mine Action Projects portfolio, the amount of overall shortfall for the appealed funds is $219 million, showing an increase in shortfall ($136 million) when compared to that of 2005.[248] (Table 6)

Table 6. Overall reported funds received toward Portfolio Appeal for 2006/2005[249]

	2006	**2005**
	(January - December)	(January – December
Total Portfolio Appeal	$459 million	$378 million
Total funds received	$240 million	$241 million
Shortfall	$219 million	$136 million

Of all the funds appealed by the U.N., mine-clearance projects received nearly half of the funds in 2006 (Table 7).[250]

247 U.N. Portfolio of Mine Action Projects, http://www.mineaction.org/section.asp?s=projects (accessed 2 October 2007).

248 2006 U.N. Portfolio End-Year Review, January 2007, http://www.mineaction.org/downloads/1/1EYR%20narrative.pdf (accessed 7 November 2007).

249 Ibid.

250 Ibid.

Table 7. Funds appealed by U.N.

Pillar	Appeal by Pillar Percentage of in US$ and as a Total 2006 Appeal	Amount Received	Amount received as percentage of Total Appeal	Amount received as percentage of Total $240 Million received for 2006
Mine Clearance	$219 Million (48%)	$116 Million	53%	48%
Multiple	$175 Million (38%)	$110 Million	63%	46%
MRE	$25 Million (5%)	$6.4 Million	26%	3%
Stockpile Destruction	$2.4 Million (1%)	$4 Million	100%	2%
Victim Assistance	$36 Million (8%)	$3.5 Million	10%	1%
Advocacy	$1.7 Million (0.4%)	$.08 Million	5%	0.03%
TOTAL OVERALL	$ 459 Million	$ 240 Million	52.30%	100%

Asia and Europe received 51% of the funds appealed (in 2006) while Asia had more ($123 million) than that of Africa ($ 92 million).[251]

Table 8. Funds received by region and for global projects in 2006

Region	Appeal Amount and as a Percentage of Total $459 Million Appeal	Amount Received	Amount Received as Percentage of Total Appeal	Amount Received as Percentage of Total $240 Million Received for 2006
Africa	$179.4 Million (39%)	$ 92 Million	51%	38%
Asia	$241 Million (53%)	$123 Million	51%	51%
Latin America	$ 5 Million (1%)	$ .4 Million	7%	0.20%
E Europe	$ 19 Million (4%)	$ 11 Million	58%	5%
Global	$ 14.4 Million (3%)	$ 14.2 Million	99%	6%
TOTAL OVERALL	$459 Million	$240 Million	52%	100%

Among the 313 projects in the 2007 edition of the Portfolio,[252] approximately half were submitted by either international or national NGOs. For year 2007, the budget of all projects in the Portfolio is U.S. $437 million. About $112 million had already been secured by some appealing agencies at the time of the publication's release, leaving a shortfall of about U.S. $325 million.[253]

[251] 2006 U.N. Portfolio End-Year Review, January 2007.

[252] U.N. Portfolio of Mine Action Projects (2007).

[253] Ibid.

Table 9. 2007 U.N. Mine Action Projects Portfolio (Mine Clearance)[254]

LOCATION / PROJECT	APPEALING AGENCY	PROJECT BUDGET	FUNDING SHORTFALL
Afghanistan (Islamic Republic of)			
Mine and Unexploded Ordnance (UXO) Clearance in Afghanistan	The Islamic Republic of Afghanistan and U.N. Mine Action Team (UNMAT)	$71,350,269	$26,290,017
Mine Survey in Afghanistan	The Islamic Republic of Afghanistan and U.N. Mine Action Team (UNMAT)	$7,568,028	$6,331,761
		$78,918,297	**$32,621,778**
LOCATION / PROJECT	APPEALING AGENCY	PROJECT BUDGET	FUNDING SHORTFALL
Albania			
Humanitarian Mine Action in Albania	DanChurchAid (DCA) and National Clearance Capacity	$1,378,576	$423,960
		$1,378,576	**$423,960**
Azerbaijan			
Suspected Area Reduction and Mechanical Clearance	U.N. Development Programme (UNDP)	$650,000	$650,000
		$650,000	**$650,000**
Bosnia and Herzegovina			
Demining Project in Bosnia and Herzegovina	INTERSOS	$750,750	$750,750
Demining to Promote Tourism	Handicap International (HI) - France	$585,519	$585,519
Direct Demining Project	U.N. Development Programme (UNDP)	$630,050	$630,050
Establishment of Permanent Marking for Dangerous Areas	Handicap International (HI) - France	$493,945	$493,945
Mine Impact Free	Handicap International (HI) - France	$503,037	$503,037
		$2,963,301	**$2,963,301**
Burundi			
Humanitarian Mine Action Burundi	DanChurchAid (DCA)	$1,749,500	$1,749,500
		$1,749,500	**$1,749,500**
Democratic Republic of Congo			
Emergency Clearance of Mines and Explosive Remnants of War (ERW)	U.N. Mine Action Service (UNMAS)	$3,245,000	$2,000,000
Emergency Impact Survey in the	U.N. Mine Action Service	$2,071,400	$850,000

254 U.N. 2007 Portfolio of Projects Breakdown, http://www.mineaction.org/projects_funding.asp?c=&pillar=2&sh=%2C&aa (accessed 3 October 2007).

Democratic Republic of Congo	(UNMAS)		
Mine and UXO Clearance and Emergency Impact Survey of Mined Areas in Katanga	DanChurchAid (DCA)	$850,027	$740,683
Preliminary Opinion Collection	Survey Action Center (SAC)	$575,000	$200,000
Unexploded Ordnance Clearance and Emergency Impact Survey of Mined Areas in South Kivu	DanChurchAid (DCA)	$850,027	$554,868
		$7,591,454	**$4,345,551**
Eritrea			
Support to the Eritrean Demining Authority, Operations Unit	Eritrean Demining Authority	$700,000	$700,000
		$700,000	**$700,000**
LOCATION / PROJECT	APPEALING AGENCY	PROJECT BUDGET	FUNDING SHORTFALL
Ethiopia			
Ethiopian Mine Action Office Operations	U.N. Development Programme (UNDP)	$5,428,386	$400,000
		$5,428,386	**$400,000**
Guinea Bissau			
Explosive Ordnance Disposal (EOD) Capacity Training	Cleared Ground Demining	$575,000	$447,000
Humanitarian Clearance of Mines and Explosive Remnants of War (ERW)	U.N. Development Programme (UNDP)	$551,250	$401,250
		$1,126,250	**$848,250**
Iraq			
Clearance of Explosive Remnants of War in South Iraq	Danish Demining Group (DDG)	$4,166,666	$2,500,000
		$4,166,666	**$2,500,000**
Lao People's Democratic Republic			
Support to UXO Lao Operations	U.N. Development Programme (UNDP)	$5,600,849	($218,130)
Unexploded Ordnance (UXO) and Mine Clearance in Laos—Explosive Detection Dogs	Mines Advisory Group (MAG)	$690,387	$690,387
Unexploded Ordnance (UXO) Clearance	Swiss Foundation for Mine Action (FSD)	$2,890,274	$2,890,274
UXO and Mine Clearance in Laos	Mines Advisory Group (MAG)	$720,000	$720,000
		$9,901,510	**$4,082,531**
Lebanon			

Continuation of Operational Clearance Capacities in South Lebanon	U.N. Mine Action Service (UNMAS)	$14,690,000	$7,083,254
Coordination and Quality Assurance of Mine and UXO Clearance in South Lebanon	U.N. Mine Action Service (UNMAS)	$3,446,334	$753,344
Emergency Battle Area Clearance	Mines Advisory Group (MAG)	$2,221,340	($482,086)
Emergency Humanitarian Demining capacity in Lebanon	Foundation Suisse de Deminage	$2,328,979	$2,328,979
Humanitarian Mine Action in conflict-affected areas in southern Lebanon	DanChurchAid (DCA)	$996,819	$996,819
Mine and UXO Clearance in Lebanon Above the Capacity of National Assets	U.N. Development Programme (UNDP)	$3,049,500	$3,049,500
Operation Emirates Solidarity 2	National Demining Office (NDO) and U.N. Mine Action Service (UNMAS)	$21,300,000	$0
Operation Freedom From Fear: Community Empowerment to End the Threat of Cluster Munitions	U.N. Mine Action Service (UNMAS)	$1,023,241	$24,991
		$49,056,213	**$13,754,801**
Mauritania			
Demining Operations in Mauritania	National Humanitarian Demining Office (NHDO)	$800,000	$800,000
Technical Survey in Mauritania	National Humanitarian Demining Office (NHDO)	$310,000	$310,000
		$1,110,000	**$1,110,000**
Senegal			
Humanitarian Demining Activities in Casamance	Centre National d'Action Antimines du Sénégal (CNAMS) and U.N. Development Programme (UNDP)	$1,500,000	$4,500,000
		$1,500,000	**$4,500,000**
Somalia			
Emergency ERW Disposal Teams South Central Somalia	U.N. Development Programme (UNDP) and U.N. Mine Action Service (UNMAS)	$1,130,000	$1,130,000
Emergency Rapid Response Survey Teams South Central Somalia	U.N. Development Programme (UNDP) and U.N. Mine Action Service (UNMAS)	$715,290	$715,920

Landmine Impact Survey (LIS) in Sool and Sanaag Regions	U.N. Development Programme (UNDP)	$412,450	$412,450
Support to Police Explosive Ordnance Disposal (EOD) teams in Puntland	U.N. Development Programme (UNDP)	$5,085	$5,085
Support to Police Explosive Ordnance Disposal (EOD) teams in Somaliland	U.N. Development Programme (UNDP)	$24,350	$23,750
Support to Police Explosive Ordnance Disposal (EOD) Teams in South Central Somalia	U.N. Development Programme (UNDP)	$422,620	$422,620
		$2,709,795	**$2,709,825**
LOCATION / PROJECT	APPEALING AGENCY	PROJECT BUDGET	FUNDING SHORTFALL
Sri Lanka			
Humanitarian Demining in Sri Lanka	Sarvatra	$626,545	$510,200
Humanitarian Demining in the Northern and Eastern Provinces	Milinda Morogoda Institute for People's Empowerment	$602,000	$402,000
Humanitarian Demining Project in Northern Sri Lanka	The Horizon	$510,631	$134,344
Mine Clearance and Capacity Building in Sri Lanka	Norwegian People's Aid (NPA)	$3,315,500	$2,965,500
		$5,054,676	**$4,012,044**
Sudan			
Capacity Building and Mine Clearance	Friends of Peace and Development (FPDO)	$0	$0
Capacity Development of Mechanical Demining and Management Team	Nuba Mountain Mine Action Sudan (NMMAS)	$0	$0
Establishment of Five Mine Detection Dog Teams	Friends of Peace and Development (FPDO)	$0	$0
Integrated Mine and Explosive Remnants of War (ERW) Clearance Groups	U.N. Mine Action Service (UNMAS)	$47,252,080	$23,789,021
Landmine Impact Survey—Eastern Equatoria, Blue Nile State and a State to Be Determined	Mines Advisory Group (MAG)	$0	($1,191,792)
Route Clearance in Central and Southern Sudan	U.N. Mine Action Service (UNMAS)	$15,288,900	$4,533,900
Route Clearance in Lakes State	Mines Advisory Group (MAG)	$0	$0
Southern Sudan Roads and Dykes Rehabilitation Project	World Food Programme (WFP)	$8,560,000	($1,955,000)
Unsecured Small Arms Destruction, Explosive Ordnance Disposal (EOD) in Central Equatoria	Mines Advisory Group (MAG)	$0	($299,965)
		$71,100,980	**$24,876,164**

Tajikistan			
Commercial Mine Clearance	U.N. Development Programme (UNDP)	$378,945	$378,945
Mechanical Support to the National Mine Action Programme	U.N. Development Programme (UNDP)	$975,599	$975,599
Mine Clearance, Survey and Mine Detection Dog Capacity Development	Swiss Foundation for Mine Action (FSD) and Organization for Security and Co-operation in Europe (OSCE)	$3,028,604	$3,028,604
		$4,383,148	**$4,383,148**
LOCATION / PROJECT	APPEALING AGENCY	PROJECT BUDGET	FUNDING SHORTFALL
Uganda			
Mine Detection Dog Project	U.N. Development Programme (UNDP)	$131,040	$131,040
		$131,040	**$131,040**
Viet Nam			
Regional UXO and Landmine Impact Survey and Rapid Technical Response	Viet Nam Veterans of America Foundation (VVAF)	$1,929,486	$929,486
		$1,929,486	**$929,486**
Yemen			
Mine-Detection Dog Project	U.N. Development Programme (UNDP)	$326,000	$326,000
		$326,000	**$326,000**
Zambia			
Humanitarian Demining in Zambia in 2007	U.N. Development Programme (UNDP)	$275,000	$91,666
		$275,000	**$91,666**
Overall Totals for all de-mining projects:		**$252,150,278**	**$108,109,045**

b. Mine Action Funding Mechanisms of U.N.

The various U.N. actors coordinate fund raising activities with UNMAS to make sure that they are consistent and mutually reinforcing.[255]

UNMAS works hard to ensure the transparent management of funds contributed to the Voluntary Trust Fund (established by the Secretary-General in 1994 to deal with financing operational and policy-related coordination activities and operational activities in U.N.-managed mine action programs) for Assistance in Mine Action (VTF). VTF funds are sometimes allocated to other U.N. partners to support activities in mine action programs supported by the U.N.[256] Responsibility for the Trust Fund lies with UNMAS, which provides full reporting for all contributions, as requested by the donors.[257]

Despite the fact that most of the funds raised are channeled through the U.N. system (for example: In 2002, it was estimated that approximately U.S. $200 million has been donated for mine action activities worldwide. Of this total, about 40% was channeled through the United Nations system[258]); it is also possible to channel the available funds through external partners such as the NGOs.[259] While mine action depends on the funds provided from national governments (either affected countries or the donor countries), international organizations and private organizations of different types,[260] State Parties to the Antipersonnel Mine Ban Treaty are also bound, provided that they are able, to provide mine action assistance to affected countries.[261]

The U.N. has several funding mechanisms.[262] These include:

- The Voluntary Trust Fund for Assistance in Mine Action (VTF),

255 *Resource Mobilization For Mine Action Through The United Nations, 5*.

256 The United Nations Mine Action Service (UNMAS) Annual Report 2006, 62, http://www.mineaction.org/downloads/1/finalunmas_annual_report_06.pdf (accessed 2 October 2007).

257 *Resource Mobilization For Mine Action Through The United Nations, 7*.

258 Ibid.

259 Mine Action and effective coordination: the United Nations policy, 16.

260 Resource Mobilization For Mine Action Through The United Nations, 6.

261 Article 6 of Ottawa Landmine Ban treaty, http://www.un.org/Depts/mine/UNDocs/ban_trty.htm (accessed 7 October 2007).

262 Resource Mobilization For Mine Action Through The United Nations, 6.

- The Central Emergency Revolving Fund (CERF), managed by the Office for the Coordination of Humanitarian Affairs (OCHA)
- UNDP Thematic Trust Fund, managed by the United Nations Development Program (UNDP)
- UNDP Country Office Trust Funds
- UNICEF Program Funding Office and National Committees, and
- The Adopt-A-Minefield program of the United Nations Association of the United States of America and the Better World Fund.

In addition, some programs also benefit from resources available to U.N. peacekeeping operations (e.g., Eritrea/Ethiopia, Lebanon, Kosovo and DRC) or from the Oil-for-Food Program in Northern Iraq.

Voluntary Trust Fund for Assistance in Mine Action: In 1993, General Assembly resolution 48/7 provided a new view for funding: Resolution required the secretary general to report on "the advisability of establishing a voluntary trust fund to finance, in particular, information and training programs relating to mine clearance and to facilitate the launching of mine clearance operations."[263] The Voluntary Trust Fund for Assistance in Mine Action (VTF) was established by the Secretary-General in 1994 to provide resources for mine-action activities where other sources of funding are not immediately available.

The main responsibility of the Voluntary Trust Fund for Assistance in Mine Clearance (VTF) is to finance the overall coordination of U.N. mine action, assessment operations, initiation of new mine action activities and bridging of funding delays in ongoing programs.[264]

Since its establishment, the VTF has received over U.S. $202,574,620 from fifteen top contributing governments and received U.S. $202,574,620 from all the donors from 2004 to 17 September 2007.[265] These funds have been used in all kinds of mine-related operations in most of the severely mine-affected countries, including

[263] Kevin M. Cahill, M.D., *Clearing the mine Fields, Solutions to the Global Land Mine Crisis*, (New York: Basic Books, 1995),168.

[264] Mine Action and effective coordination: the United Nations policy, 36.

[265] U.N. Website, http://www.mineaction.org/overview.asp?o=28 (accessed 4 October 2007).

Afghanistan, Angola, Azerbaijan, Bosnia and Herzegovina, Cambodia, Chad, Croatia, DRC, Eritrea, Ethiopia, Guatemala, Guinea-Bissau, Iraq, Kosovo (FRY), Lao PDR, Lebanon, FYROM, Mozambique, Nicaragua, Somalia, Sri Lanka, Sudan, Thailand, and Yemen.[266]

In 2005, the U.N. VTF received total fund support of about $50 million for mine action for six countries (Afghanistan, Burundi, Democratic Republic of Congo, Eritrea, Lebanon and Sudan).[267] Year 2006 has been a record year in respect to the number of donor governments (twenty-two[268]) making contributions for mine action. Contributions to the Voluntary Trust Fund for Assistance in Mine Action in 2006 are tabulated below. Total contributions together have added up to $51,029,053—a record level.

[266] Resource Mobilization For Mine Action Through The United Nations, 6.

[267] Landmine Monitor 2006 Report.

[268] U.N. Mine Action 2006 Report, 64.

Table 10. Contributions to the Voluntary Trust Fund (VTF) for Assistance in Mine Action in 2006, in U.S$[269]

Donor	Advocacy	Afghanistan	Angola	Burundi	Congo D.R.	HQ Coord.	Ethiopia and Eritrea	Gender	Lebanon	Sudan	Unearmarked	Victim Assistance	Grand total
Australia									385,800				385,800
Austria									526,920				526,920
Canada		4,264,029			104,275	434,480		42,477	1,123,192	3,760,840			9,729,293
Chile									50,000				50,000
Common Humanitarian Fund										1,843,750			1,843,750
Czech Rep.									94,616				94,616
Denmark		861,921						42,923	967,199		858,458		2,730,501
Estonia									25,042				25,042
EU		6,030,330								403,632			6,433,962
Finland		1,151,100				529,038			1,323,500				3,003,638
Germany									1,000,000				1,000,000
Individual/ Anonymous											485,097	8,842	493,939
Ireland									328,799				328,799
Italy	213,010								2,625,600				2,838,610
Japan				553,665							373,505		927,170
Liechtenstein											40,303		40,303
Lithuania		15,296											15,296
Luxembourg									128,140				128,140
Netherlands		1,533,280			542,000				5,000,000	3,012,000			10,087,280
New Zealand											239,050		239,050
Spain		1,636,400							267,362	602,638			2,506,400
Sweden						680,035							680,035
Switzerland									499,975				499,975
UK		235,090		117,545	293,866	900,740	117,545		2,578,175	176,318			4,419,279
U.N. Intl School M2-01			1,255										1,255
U.S.									2,000,000				2,000,000
Grand Total	213,010	15,727,446	1,255	671,210	940,141	2,544,293	117,545	85,400	18,924,320	9,799,178	1,996,413	8,842	51,029,053

[269] U.N. Mine Action 2006 Report, 64.

Table 11. Contributions to the Voluntary Trust Fund for Assistance in Mine Action for the period from 1 January 2004 to 17 September 2007 *(in U.S. dollars)*[270]

Donor	2004	2005	2006	2007	Total
Andorra	19,091	25,522	-	31,800	76,413
Australia	895,180	-	385,800	2,923,400	4,204,380
Austria	717,072	-	526,920	-	1,243,992
Belgium	248,618	-	-	-	248,618
Canada	1,973,564	8,936,634	9,729,293	29,940,528	50,580,019
Chile	-	-	50,000	-	50,000
Czech Republic	15,944	80,457	94,616	-	191,017
Denmark	1,396,202	1,623,303	2,730,501	2,873,588	8,623,594
Estonia	6,000	2,000	25,042	10,000	43,042
European Commission	17,169,130	16,605,646	6,433,961	21,657,166	61,865,903
Finland	1,809,480	1,823,280	3,003,638	1,213,470	7,849,868
Germany	260,806	1,343,830	1,000,000	-	2,604,636
Holy See	-	8,000	-	-	8,000
Ireland	-	52,496	328,799	-	381,295
Italy	721,845	-	2,838,610	716,611	4,277,066
Japan	4,098,124	7,430,492	927,170	3,324,949	15,780,735
Republic of Korea	-	-	-	100,000	100,000
Liechtenstein	-	38,750	40,303	41,480	120,533
Lithuania	-	-	15,296	-	15,296
Luxemburg	-	-	128,140	-	128,140
Malta	2,000	-	-	-	2,000
Monaco	15,000	-	-	-	15,000
Netherlands	1,329,500	3,435,600	10,087,280	-	14,852,380
New Zealand	246,660	599,220	239,050	621,476	1,706,406
Portugal	-	15,000	-	-	15,000
Spain	-	-	2,506,400	-	2,506,400
Sweden	-	634,670	680,035	250,000	1,564,705
Switzerland	120,000	40,025	499,975	-	660,000
United Arab Emirates	520,910	310,000	-	600,000	1,430,910
United Kingdom of Great Britain and Northern Ireland	9,191,400	7,155,443	4,419,275	1,961,500	22,727,618
United States of America	-	-	2,000,000	-	2,000,000
Roots of Peace	180,000	80,000	-	-	260,000
Foxcroft School	-	6,018	-	-	6,018
Anonymous donor	-	-	484,392	-	484,392
United Nations International School	-	-	1,250	-	1,250
UNIC Tokyo	-	-	8,842	-	8,842
Common Humanitarian Fund (UNDP)	-	-	1,843,750	4,869,525	6,713,275
Private donations	-	-	705	-	705
Total	**$40,936,526**	**$50,246,386**	**$51,029,043**	**$71,135,493**	**$213,347,448**

[270] U.N. Website, http://www.mineaction.org/overview.asp?o=28 (accessed 3 October 2007).

The top fifteen contributors to the United Nations Trust Fund for Assistance in Mine Action provided 94.9% of the total resources during the period from 1 January 2004 to 17 September 2007.[271]

Table 12. Top fifteen contributors to the United Nations Trust Fund for Assistance in Mine Action.[272]

Donor	Amount ($ U.S.)
European Commission	**61,865,903**
Canada	**50,580,019**
United Kingdom of Great Britain and Northern Ireland	**22,727,618**
Japan	**15,780,735**
Netherlands	**14,852,380**
Denmark	**8,623,594**
Finland	**7,849,868**
Italy	**4,277,066**
Australia	**4,204,380**
Germany	**2,604,636**
Spain	**2,506,400**
United States of America	**2,000,000**
New Zealand	**1,706,406**
Sweden	**1,564,705**
United Arab Emirates	**1,430,910**
Total	**202,574,620**

[271] U.N. Website, http://www.mineaction.org/overview.asp?o=28 (accessed 3 October 2007).

[272] Ibid.

Central Emergency Response Fund (Formerly Central Emergency Revolving Fund): On 15 December 2005, after the sixty-third plenary meeting, the General Assembly passed, by consensus, the resolution A/RES/60/124[273], which upgraded the former Central Emergency Revolving Fund to the Central Emergency ***Response*** Fund. But its main responsibilities remained the same. It has been used as an important funding instrument all around the world to help save lives through the provision of quick initial funding at the onset of humanitarian crises.[274]

Although this fund is mostly not desired by the U.N. agencies due to the requisite that mandates fund reimbursement in six months, the fund managed to collect and disburse some U.S. $337 million in loans between 1991 and 2005 proving the firm indications that donor funding is forthcoming. The main and frequent use of the fund has been in high-profile crises such as Afghanistan, Iraq and Kosovo, where quick reimbursement is guaranteed by confirmed pledges from donors.[275]

UNMAS uses the fund when required only to make advances to U.N. organizations and entities.[276]

U.N. Development Program (UNDP) Thematic Trust Fund for Crisis Prevention and Recovery: These funds are powerful tools aiming to help UNDP deal with its development priorities, including mine action, which enable donors to contribute to

273 United Nations, Resolution adopted by the General (60/124), 8 March 2006) *Strengthening of the coordination of emergency humanitarian assistance of the United Nations*, http://daccessdds.un.org/doc/UNDOC/GEN/N05/495/04/PDF/N0549504.pdf?OpenElement (accessed 6 October 2007).

274 United Nations Office for the Coordination of Humanitarian Affairs (OCHA) Website, http://ochaonline.un.org/FundingFinance/CERF/tabid/1109/Default.aspx (accessed 6 October 2007).

275 U.N. Report of the Secretary-General, A/60/432, 20 October 2005, Improvement of the Central Emergency Revolving Fund, 3, http://72.14.253.104/search?q=cache:AqSQve04JxAJ:ochaonline.un.org/OchaLinkClick.aspx%3Flink%3Docha%26docid%3D16347+Central+Emergency+Revolving+Fund&hl=en&ct=clnk&cd=2&gl=us (accessed 4 October 2007).

276 Mine Action and effective coordination: the United Nations policy, (New York: U.N., June 2005), 21, website http://www.mineaction.org/downloads/1/MAEC_8_2_6_%20final%20PDF.pdf (accessed 4 October 2007).

UNDP in support of its thematic priorities. Mine Action is a distinct Service Line in the Crisis Prevention and Recovery practice area.[277]

Funds made significant contributions to some severely affected countries in order to help them meet their obligations under the Anti-Personnel Mine Ban Convention and tried to support de-mining activities in countries that can demonstrate that their landmine contamination problem can be solved in three to five years and for less than U.S. $10 million.[278]

According to the U.N. mine action website,[279] the U.N. Development Program (UNDP) mobilizes its own resources for mine action. The Thematic Trust Fund for Crisis Prevention and Recovery raised about $30 million of the amount UNDP (more than $70 million) raised between August 2003 and August 2004. According to the 2005 Report,[280] $27,197,231 of $248,363,675 of income (Japan is the biggest donor for 2005 with $61,667,288 of donation) was spent on mine clearance (Afghanistan had the largest share of donations and services received with $15,716,231).[281]

The U.N. Development Group (UNDG) Iraq Trust Fund: This fund received $1 million in mine action funding from the Republic of Korea in 2005. In 2006, Greece made a significant donation by its €1.9 million ($2.4 million) commitment.[282]

The U.N. Trust Fund for Human Security (UNTFHS): Though founded in 1999, the fund made its first donations with more than $1.7 million to Sudan in 2006. Japan is the UNTFHS' only donor to this fund.[283]

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277 Resource Mobilization for Mine Action Through The United Nations, 7.

278 UNDP, 2005 Report on the UNDP Thematic Trust Fund for Crisis Prevention and Recovery, http://www.undp.org/cpr/whats_new/ttf_report_2005.pdf (accessed 6 October 2007).

279 U.N. Mine Action Website, http://www.mineaction.org/section.asp?s=who_pays_for_it (accessed 6 October 2007).

280 UNDP, 2005 Report Thematic Trust Fund.

281 Ibid.

282 Land Mine Monitor 2006 Report.

283 Ibid.

UNDP Trac Funding and Country Office Trust Funds: The U.N. uses trac funding resources as core resources, which each year support a substantial number of UNDP mine action programs.

UNDP Country Office Trust Funds: The U.N. has another funding mechanism especially for the donors/donor countries who wish to fund the Country Offices directly rather than through UNDP's Thematic Trust Fund for Crisis Prevention and Recovery.[284] Management of many country- and project-specific trust funds is conducted by UNDP Country Offices.[285]

Adopt-A-Minefield (AAM): In an effort to have more interesting and diverse ways to raise funds and address the issue more effectively, the United Nations Association of the USA (UNA-USA) in partnership with the United Nations, Ted Turner's Better World Fund, and the U.S. State Department[286] began developing a program in 1998, following the signing of the Ottawa Convention.[287]

In this program, different from other fund raising activities, the program sponsors actually adopt an entire mine clearance project and provide the necessary funds (normally between $25,000 and $40,000)[288] to clear a mine field. Since the cost of clearing mine-affected areas differs significantly depending on the type and size of minefield and the complexity of the de-mining task, sponsors may not be able to adopt entire minefields, and make smaller contributions (as little as $5).[289] In this case, funds collected are pooled together and then used in a project, about which the donors are given

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284 Resource Mobilization for Mine Action Through the United Nations, 8.

285 Report Prepared by UNMAS, 3.1.3, *The United Nations and Explosive Remnants Of War*, 16 June 2003, http://72.14.253.104/u/unmas?q=cache:U2dCPecUKuYJ:www.mineaction.org/downloads/ccw-gge-v-wg1-wp2.doc+UNDP+Country+Office+Trust+Funds&hl=en&ct=clnk&cd=1&gl=us&ie=UTF-8 (accessed 6 October 2007).

286 Adopt-A-Minefield Website, http://www.landmines.org/about/whoweare/ (accessed 17 October 2007).

287 Nahela Hadi, Adopt-A-Minefield, *Engaging Civil Society in Mine Action*, Journal of Mine Action, Issue 9.1, August 2005, http://maic.jmu.edu/journal/9.1/Focus/hadi/hadi.htm (accessed 6 October 2007).

288 Adopt a minefield Website, http://www.landmines.org/about/ (accessed 6 October 2007).

289 Ibid.

detailed activity reports[290] and clearance certificates,[291] which are pooled with other contributions. Every dollar raised is forwarded to the United Nations for mine clearance.[292]

The program managed to raise over U.S. $6.75 million donated for mine clearance in six of the most heavily mined countries in the world[293] (Afghanistan, Bosnia and Herzegovina, Cambodia, Croatia, Mozambique and Vietnam) by the end of January 2003.[294] By the end of 2003, funds raised by Adopt a Minefield reached topped $10 million for mine action in six countries.[295] In March 2005, the program raised over $13.6 million to clear over 19 million square meters of land.[296] Fund raising peaked in October 2007—with over $18 million collected for mine clearance and survivor assistance—and total cleared area surpassed 21 million square meters of land.[297]

UNICEF: The involvement of the United Nations Children's Fund (UNICEF) in mine action began with its operations in El Salvador and Somalia in 1993.[298]

UNICEF does not engage in mine clearance directly; it helps other funds to be spent on the mine clearance projects while focusing on Mine Risk Education

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290 Michael Norton, *365 Ways to Change the World: How to Make a Difference One Day at a Time*, (New York: Free Press, 2007), 313.

291 Jenny Lange, *Celebrities and Landmines,* MAIC, Journal of Mine Action, Issue 6.1, April 2002, http://www.maic.jmu.edu/JOURNAL/6.1/notes/lange/lange.htm (accessed 6 October 2007).

292 Adopt-A-Minefield (United Nations Association of the USA) (AAM), U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=66 (accessed 6 October 2007).

293 Adopt-A-Minefield Website, http://www.landmines.org/about/whoweare/ (accessed 17 October 2007).

294 Ibid.

295 U.N. General Assembly Fifty-ninth session Report, *Assistance in mine action*, Report of the Secretary-General, A/59/284, 20 August 2004, www.mineaction.org/downloads/undoclib/SG%20reports%20to%20GA/SG%20reports%2059th%20session/A%2059%20284.doc (accessed 7 November 2007).

296 Hadi, Adopt-A-Minefield: Engaging Civil Society in Mine Action.

297 United Nations Association of the USA Website, http://www.unausa.org/site/pp.asp?c=fvKRI8MPJpF&b=475371 (accessed 7 August 2007).

298 Taz Khaliq, Evaluation Of UNICEF's Support To Mine Action, June 2006, http://www.mineaction.org/downloads/1/Evaluation%20Report%20EMER%20ICC%202005.pdf (accessed 7 November 2007).

(MRE), advocacy to stigmatize mine usage and assistance to those injured in blasts.[299] UNICEF is actively involved in the different coordination mechanisms established by UNMAS,[300] governments, donors and other partners at the global and national levels. UNICEF also participates in the development of the Portfolio of Mine Action Projects, and is involved in the Resource Mobilization Contact Group, the MASG.

The Program Funding Office (PFO) and UNICEF National Committees[301] raise the funds for UNICEF mine action programs. UNICEF raises funds through Humanitarian Action Reports, National Committees, Consolidated Appeals and bilateral donations directly to Headquarters, country and regional offices. Funds and all other resources collected are managed and dispersed by UNICEF country offices through partnership and service agreements identified in the Country Plan of Action.[302] Coordination of relations with donor Governments is conducted mainly through Permanent Missions in capital cities of donor countries. PFO acts as the formal liaison between donor Governments and UNICEF.[303]

Host Government Contributions: Mine-afflicted countries are the most eager stake holder in mine-clearance fund raising efforts. But, due to the devastation in most such countries, host governments can not afford to fund national or international de-mining efforts. Kuwait is one extreme example of a country that can afford to fund all the de-mining efforts conducted in its country.[304] (Kuwait contracted de-mining operations to private mine-clearing companies for $700 million).[305] Most of the governments of mine-affected countries provide financial contributions to their national mine action Programs

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299 UNICEF Website, http://www.unicef.org/emerg/index_landmines.html (accessed 7 October 2007).

300 *Mine Action and Effective Coordination: The United Nations Inter-Agency Policy*, 36, http://mineaction.org/downloads/1/MAEC_8_2_6_%20final%20PDF.pdf (accessed 7 October 2007).

301 Resource Mobilization For Mine Action Through The United *Nations, 8.*

302 Ibid, 30.

303 Resource Mobilization For Mine Action Through The United Nations.

304 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 122.

305 Paul Lewis, "Red Cross to Urge U.N. to Adopt A Complete Ban on Land Mines," *New York Times*, 28 February 1994, http://query.nytimes.com/gst/fullp.html?res=9B0DE2DF143AF93BA15751C0A962958260 (accessed 10 October 2007).

when resources permit.[306] The U.N. tries to encourage such contributions as they emphasize the significance of U.N./host government partnerships in dealing with the mine problems.

2. E.U.:

According to Land Mine Monitor,[307] the Mine Ban Treaty influences its decision on mine action funding. The EC states "proven commitment of non-State Parties to mine action and the principles of the Mine Ban Treaty" as the E.U.'s funding criteria.

The E.U.'s overall purpose in mine clearance is characterized by "Zero Victim Target." In order to achieve this objective, the EU decided to use its sources to support and contribute global efforts toward mine action, both politically and financially. The E.U. has engaged in the mine-related problems since 1995, through resolutions.[308]

The E.U. financially contributed to mine action through a variety of institutions, especially the U.N. Voluntary Trust Fund for Assistance in Mine Clearance and the International Committee of the Red Cross (ICRC). The E.U. is the biggest single donor to both the United Nations and the ICRC for funds related to mine actions.[309]

The E.U. contributed more than €180 million (except for individual contributions—bilateral or general—realized by member governments) from 1992 to 1998 to support de-mining programs. The overall figure for the period 1997-2004 is more than €1 billion, representing more than half of the overall financial contributions to mine action during that period.[310] This figure has even increased to its record level in 2005 of €1.2 billion.[311]

In March 2000, one year after the Anti-personnel Landmine Ban Agreement, the annual overall E.U. contributions to de-mining projects reached the record amount of

306 Resource Mobilization For Mine Action Through The United Nations.

307 Landmine Monitor 2006 Report.

308 The EU and Anti-Personnel Landmines Challenge, European Commission Website, http://ec.europa.eu/external_relations/mine/intro/index.htm (accessed 7 October 2007).

309 Ibid.

310 Ibid.

311 The European Union Mine Actions in the World, 2006 Edition, 13, http://ec.europa.eu/external_relations/library/publications/26_mines_2006_en.pdf (accessed 7 October 2007).

€125 million.[312] The following year (July 2001), the Council and the European Parliament approved a set of two Regulations (Regulations (EC) N°1724/2001[313] and N°1725[314]) on the support of the E.U. activities against Antipersonnel Landmines, laying the foundations of the E.U. policy. The same year, the E.U. Member States and the European Community (E.C.) together contributed a new record figure of €145 million[315]

During the 2002-2004 period, a total E.C. contribution of **€157,279 million** was committed (**€42,081 million** committed in 2002, **€57,038 million** in 2003 and **€58,160 million** in 2004).[316]

While the 2005 Edition of the "European Union Mine Actions in the World Report" estimated that a budget of about €60 million would be allocated under the Anti-Personnel Landmine (APL) budget line 19 02 04, and the total amount for mine action would reach €140 million (including complementary contributions from the other EC instruments) for the 2005–07 period,[317] €60 million was allocated to APL budget line 19 02 04 and the total amount for mine action reached €156 million in 2005 alone.[318]

The comparison of E.U. expenditures (2002-2005) with respect to regions is as follows:[319]

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312 The EU and Anti-Personnel Landmines Challenge.

313 Regulation (EC) No 1724/2001 of the European Parliament and of the Council of 23 July 2001 concerning *action against anti-personnel landmines in developing countries*, http://ec.europa.eu/external_relations/mine/docs/reg_1724.pdf (accessed 7 October 2007).

314 Ibid.

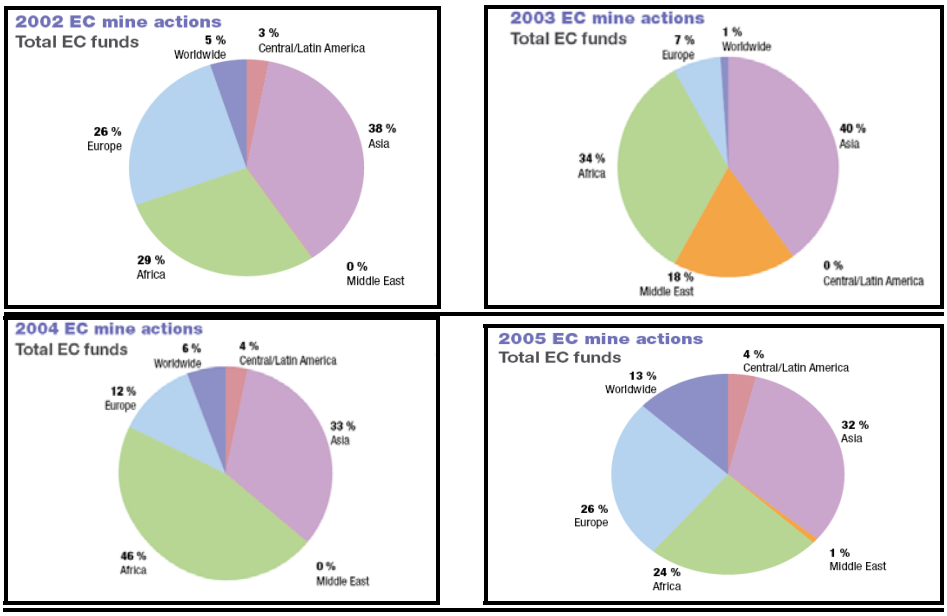
315 The EU and Anti-Personnel landmines Challenge.

316 The European Road Map towards a Zero Victim Target, The EC Mine Action Strategy & Multi-annual Indicative Programming 2005-2007. Retrieved 8 October 2007 from http://ec.europa.eu/external_relations/mine/docs/strategy_0507_en.pdf.

317 The European Union Mine Actions in the World, 2005 Edition, 12, http://ec.europa.eu/external_relations/library/publications/19_mines_2005.pdf (accessed 7 October 2007).

318 The European Union Mine Actions in the World, 2006 Edition, 13.

319 Ibid., 89.



Charts are courtesy of The European Union Mine Actions in the World, 2006 Edition

Figure 5. E.U. Mine Clearance Expenditures by Region

Table 13. European Union Expenditures as of the beginning of 2006[320]

	Total (2005) (€)	Total (1999–2004) (€)
Africa (Region Wide)	581.773	7.059.244
Angola	19.625.588	19.625.588
Benin	-	1.388.080
Burundi	1.502.742	132.000
Chad	-	2.767.931
Democratic Republic of Congo	2.786.665	8.961.950
Eritrea	628.052	21.990.381
Ethiopia	865.600	5.026.000
Guinea-Bissau	701.342	4.021.353
Mauritania	-	-
Mozambique	1.898.120	50.490.033
Senegal	320.856	494.674
Somalia	2.485.410	25.410.539
Sudan	15.018.340	20.003.607
Tunisia	-	-
Uganda	1.355.204	66.000
Asia (Region Wide)	529.439	274 945
Afghanistan	29.354.754	30.724.020
Armenia	140.000	1.400.000
Azerbaijan	1.667.638	5.670.943
Cambodia	4.315.001	71.679.288
Georgia	203.359	5.792.030
Laos	1.241.532	28.759.710
Pakistan	70.500	-
Philippines	32.000	5.792.030
Sri Lanka	4.506.490	28.031.463
Tajikistan	-	782.500
Vietnam	1.064.123	7.407.830
Central/Latin America (Region Wide)	-	-

320 The European Union Mine Actions in the World, 2006 Edition., 16-84.

Chile	1.198.381	40.166
Colombia	297.376	2.586.265
Nicaragua	1.174.080	17.052.726
Peru	1.000.000	26.000
Europe (Region Wide)	1.044.600	8.200.000
Albania	4.002.597	3.150.099
Belarus	3.000.000	8.689
Bosnia and Herzegovina	4.535.106	48.024.134
Croatia	1.010.000	16.905.539
Cyprus	4.000.000	2.520.202
Montenegro, Serbia,	990.000	-
Kosovo	1.120.108	-
Russia (CHECHNYA)	331.058	2.739.179
Ukraine	5.910.000	229.000
The Middle East (Region Wide)	-	-
Iraq	12.303.709	55.854.347
Jordan	1.325.986	16.000
Lebanon	-	13.002.472
Syria	16.000	36.000
Yemen	674.196	7.330.353

3. U.S. Funds

The U.S. started its humanitarian de-mining efforts in 1988 when it sent an assessment team to Afghanistan.[321] Formal establishment of the U.S. Humanitarian De-mining Program (October 1993) came in Afghanistan and Cambodia, where the necessary funds were mostly provided by the U.S. government.[322] The program was an inter-agency effort (Department of State, Department of Defense, Agency for International Development) to give maximum support to countries severely affected by landmines. After the establishment of the program, former U.S. humanitarian de-mining programs (Afghanistan 1988, Cambodia 1991, Kuwait 1991, northern Iraq 1992, Somalia 1991, El Salvador 1993, Mozambique 1993) were folded into it.[323] It is difficult to quantify U.S. humanitarian de-mining funding outlays prior to October 1993.[324]

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321 *To Walk The Earth In Safety*, The United States Commitment to Humanitarian De-mining, 3rd Edition November 2001, United States Department of State Bureau of Political-Military Affairs, introduction.

322 Lincoln Bloomfield, U*.S. Humanitarian Mine Action: Making the World Safer, U.S. Foreign Policy Agenda*, U.S. Department of State, Vol. 9, No. 1, January 2004, http://usinfo.state.gov/journals/itps/0104/ijpe/bloomfield.htm (accessed 10 October 2007).

323 U.S. Department of State, International Information Programs Website, http://usinfo.state.gov/af/Archive/2005/Dec/20-253462.html (accessed 7 November 2007).

324 Time Line, 19 December 2005, http://www.fredsakademiet.dk/tid/2000/2005/dec05/dec0519.htm (accessed 11 October 2007).

Although the U.S. government had estimated to spend about $1 billion by the end of 2006, the figures turned out to exceed the estimates. For the year 2007 the level of funding was planned as $58 million and for 2008 it will be $76 million.[325]

Most of U.S. funding contributions for humanitarian de-mining operations are provided by the DOS, the DoD and USAID.[326]

Normally, a U.S. humanitarian de-mining program assists a landmine-affected country by establishing a mine action center (MAC) or a national de-mining office, setting up a mine risk education program and a de-mining training program, and often funding actual mine clearance operations. The support continues until host government develops the necessary de-mining capabilities, then responsibility and management of the program is transferred to the host nation government.

According to "Humanitarian De-mining Programs Policy and Procedures Manual January 2002 edition,"[327] when a government requests U.S. contributions for their landmine contamination problem, the Mine Action Request Approval Process flows as follows:

- The U.S. normally contributes to the landmine affected country's requests through the U.S. embassy in the country. In order to be eligible to begin the process, the country's request should come at least from a ministry/deputy ministry.
- The U.S. also demands the requesting government submit a formal written request explaining their targets with the landmine problem.
- After the U.S. Embassy's approval of the request, it is sent to PM/HDP (Office of Humanitarian De-mining Programs). Stevens revealed in his e-mail (based on the information provided by Colonel Yori Escalante[328] (USMC), who serves as Deputy Director for Programs of Office of Weapons Removal & Abatement and who manages office's humanitarian mine action programs worldwide) that:

325 White House Website, http://www.whitehouse.gov/omb/expectmore/detail/10001103.2004.html (accessed 9 October 2007).

326 Jenny Lange, *The U.S. Humanitarian Mine Action Program: Helping Countries "Get on Their Feet,"* The Journal of Mine Action, Issue 7.1, April 2003, http://maic.jmu.edu/journal/7.1/focus/lange/lange.htm (accessed 16 October 2007).

327 Humanitarian De-mining Programs Policy And Procedures Manual, January 2002 Edition), 19-20.

328 Email from John E. Stevens III, Foreign Affairs Officer, Office of Weapons Removal & Abatement, Bureau of Political-Military Affairs, U.S. Department of State, (Received 16 October 2007).

The mine-affected country would come to the U.S. Embassy in their capital and request that the U.S. provide Humanitarian Demining assistance. The U.S. Embassy then documents that request in an official correspondence (known as a "Cable"), to the Office of Weapons Removal and Abatement (our office PM/WRA), in the U.S. Department of State's Bureau of Political-Military Affairs.

- PM/HDP bring this issue up on the next scheduled meeting of the Policy Coordination Committee (PCC) Subgroup on Humanitarian Mine Action (chaired by the National Security Council).[329]
- PCC Subgroup on Humanitarian Mine Action, with the U.S. Department of State, the U.S. Department of Defense (DoD), the U.S. Agency for International Development (USAID), and the U.S. Centers for Disease Control and Prevention, approves, develops, coordinates and evaluates whether the request conforms to U.S. Directives, Strategies, and other national imperatives.[330] For example, the United States never sponsors landmine stockpile destruction, considering that stockpiles don't cause an urgent danger to security and health.[331]
- If the PCC Subgroup decides to approve the request, PCC is informed with a Program Determination Letter and directs PM/HDP to carry out a Policy Assessment Visit (PAV) to assess policy issues and find out if the program is relevant to U.S. policies and strategies. Stevens states the same procedure[332] as:

Once the visit is complete, both OSD and the Dept of State determine who is the best suited to execute the Humanitarian Demining assistance, based upon several factors which include military relations and the humanitarian need. If OSD is the agency of choice, U.S. military personnel physically train the host nation's military to conduct the de-mining. The U.S. military personnel serve only as advisers. If the Department of State is the choice, PM/WRA determines whether a contract or the use of a Non-Governmental Organization (NGO) is required. In the past, NGOs have been used mainly for clearance on their own, whereas contractors have worked with the host nation to develop the national capacity to take on the Humanitarian De-mining over time. Additionally, an NGO may be [used] instead of a contractor if the political climate in the region indicates that this is necessary. Many countries not sympathetic to U.S. policies may be more

329 *To Walk to the Earth in Safety, 6th Edition*, 2.

330 Ibid., 2.

331 Lange, *The U.S. Humanitarian Mine Action Program: Helping Countries "Get on Their Feet."*

332 Email from John E. Stevens III.

likely work with a mine action NGO than a contractor, regardless of the fact that both are U.S. funded, since several of our more effective NGOs are foreign-based. The decision to use one NGO over another or one contractor over another is based upon many things. For NGOs, their experience, their abilities and capabilities, their reputation in the region or country all factor into our selection decision. For contractors, our contract assessment of them is based on value and performance.

- The PCC Subgroup may disapprove the request. Alternatively, it either proposes an emergency de-mining initiative or quick reaction de-mining force (founded by the U.S. Department of State's former Office of Humanitarian De-mining Programs that is based in Mozambique.[333])
- When the Country Plan (CP) is approved, and after PM/HDP has received funds, resources are allocated to provide the support. Also, the U.S. Embassy in the requesting country assigns a person(s) with the surveillance responsibility of local management of the program.[334] Although lots of U.S. and international funding resources may be allocated to different Humanitarian De-mining (HD) activities in various countries, there are two main resources allocated: Nonproliferation, Antiterrorism, De-mining and Related (NADR-DoD funding support is normally given under NADR[335]) and Overseas Humanitarian, Disaster, and Civic Aid (OHDACA). If NADR funds are allocated, funds must be obligated at least six weeks prior to the end of each fiscal year. NADR funds can be used to provide funding to the de-mining programs executed by organizations like the U.N. and the Organization of American States. These funds may be shifted to the Defense Security Cooperation Agency, directly to an American Embassy or to an operational element of the DoD to fund services and equipment.[336] If OHDACA funds are allocated, the Regional Commander-in-Chief has the authority to decide how the funds should be used.

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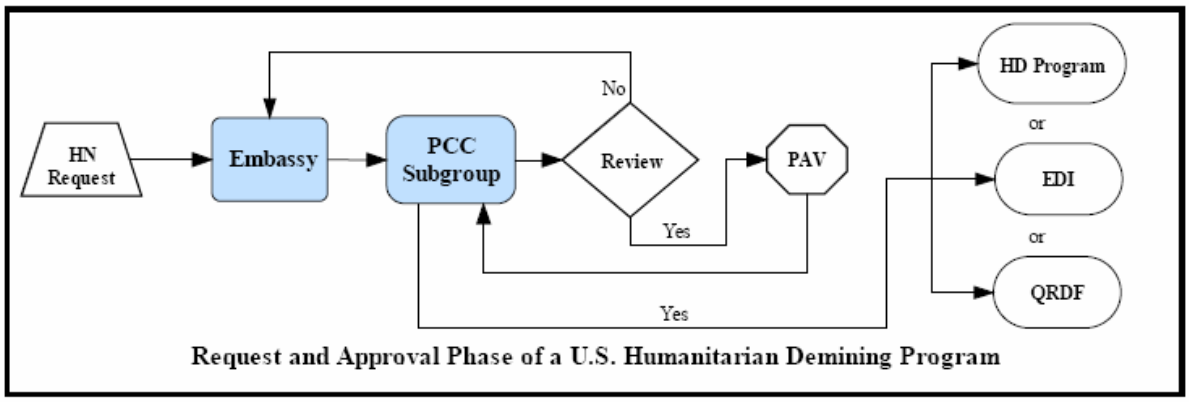
[333] Hayden Roberts, *The Quick Reaction De-mining Force: The United States' Response to Humanitarian Demining Crises*, Journal of Mine Action, Issue 8.1, June 2004, http://maic.jmu.edu/journal/8.1/focus/roberts/roberts.htm (accessed 11 October 2007).

[334] Humanitarian De-mining Programs Policy And Procedures Manual January 2002 Edition, 12, website http://www.state.gov/documents/organization/8758.pdf, (accessed 11 October 2007).

[335] Lange, The U.S. Humanitarian Mine Action Program: Helping Countries "Get on Their Feet."

[336] Ibid.



Figure, courtesy of Humanitarian De-mining Programs Policy And Procedures Manual

Figure 6. Request and Approval Phase of a U.S. Humanitarian Demining Program

The U.S. government makes contributions to the other humanitarian de-mining organizations as well. One of the organizations trying to raise funds for humanitarian de-mining is the Slovenia-based International Trust Fund (ITF) for De-mining and Victims Assistance, which has been assisting mine-affected countries in the Balkan region. The U.S. Congress appropriated $28 million dollars for the ITF in May 1998.[337] According to the ITF data base, overall U.S. contributions to ITF have reached $101.075.214 as of 11 October 2007.[338] But the U.S. Report "To Walk to the Earth in Safety, 6th Edition" gives other figures, shown in the table below.

337 U.S. Department of State, International Information Programs Website, http://usinfo.state.gov/af/Archive/2005/Dec/20-253462.html (accessed 11 October 2007).

338 ITF Website, http://www.itf-fund.si/donatorji/donatorji.asp (accessed 11 October 2007).

Table 14. U.S. Humanitarian Mine Action Program Global Funding History (FY 1993-2006) (X $1000)[339]

Country	1993 – 1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006 (Estimate)	Total
Afghanistan	12,200	2,000	3,000	2,200	2,615	3,000	2,800	12,864	22,925	42,794	14,400	13,500	134,298
Albania		-	-	-	-	1,049	684	326	1,417	2,090	1,000	-	6,566
Angola	5,070	4,500	1,868	3,132	-	3,096	3,844	3,700	3,500	6,100	6,823	5,960	47,593
Argentina	-	-	-	-	-	-	-	550	-	-	-	-	750
Armenia	1,148	-	-	-	-	1,410	850	4,441	250	1,267	-	-	9,366
Azerbaijan	-	-	-	-	140	1,610	1,100	4,170	3,200	2,772	3,983	2,800	19,775
Bosnia	-	11,288	5,375	9,400	8,480	5,500	5,461	5,650	3,460	3,500	3,873	-	61,987
Cambodia	6,455	1,670	2,584	2,750	2,800	3,060	4,579	4,209	4,110	4,631	6,925	4,900	48,673
Chad	-	-	-	1,900	1,732	639	300	350	661	1,206	1,169	2,200	10,157
Chile	-	-	-	-	-	-	-	-	-	-	735	1,100	1,835
Colombia	-	-	-	-	-	-	-	-	-	-	-	600	600
Country	**1993 – 1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**

339 To Walk the Earth in Safety, 6th Edition, 49-53.

Croatia	-	-	-	-	600	2,975	2,658	4,570	1,779	1,500	2,300	-	16,382
Djibouti	-	-	-	-	-	973	1,123	404	500	-	-	-	3,000
DR of Congo	-	-	-	-	-	-	-	800	-	-	-	-	800
Ecuador	-	-	-	-	1,000	1,412	1,663	1,010	-	-	507	900	6,492
Egypt	-	-	-	-	-	10	708	-	-	-	-	-	718
El Salvador	1,000	500	-	-	-	150	300	300	450	450	400	-	3,550
Eritrea	3,850	1,437	718	1,444	10	650	1,205	1,752	2,400	1,452	2,800	400	18,118
Estonia	-	-	-	-	335	998	853	200	235	-	-	19	2,640
Ethiopia	3,862	1,437	790	1,830	10	450	355	2,125	700	400	400	-	12,359
Georgia	-	-	-	39	-	1,137	1,000	1,100	1,050	1,504	3,000	1,838	10,668
Guinea Bissau	-	-	-	-	-	99	489	-	225		-	2,420	3,233
Honduras	-	-	-	-	-	-	-	-	-	-	-	200	200
Country	**1993 – 1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**
Iraq	-	-	-	-	-	-	-	-	15,568	61,000	21,679	-	98,247

Jordan	-	300	400	500	2,759	3,266	1,251	1,150	1,293	1,350	400	90	12,759
Kenya	-	-	-	-	-	-	-	400	-	-	-	-	400
Kosovo	-	2,307	1,816	2,378	5,173	10,388	3,053	1,681	-	-	-	-	26,796
Laos	809	2,550	5,537	3,564	3,996	1,486	993	1,828	1,700	1,912	3,200	3,300	30,875
Lebanon	-	-	-	591	1,030	1,297	1,600	1,200	2,564	2,755	4,270	1,900	17,207
Liberia	1,115	225	-	500	1,000	-	-	-	416	173	-	-	3,429
Macedonia	-	-	-	-	-	-	1,000	505	97	-	-	-	1,602
Mauritania	-	-	-	-	984	1,584	1,523	661	595	-	-	-	5,347
Moldova	-	-	-	-	71	-	-	-	-	-	-	-	71
Mozambique	10,465	300	3,317	3,600	3,000	4,040	2,480	2,410	3,032	1,842	2,736	1,835	39,057
Namibia	1,435	500	1,885	2,358	1,053	485	40	65	600	-	-	-	8,421
Country	**1993 – 1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**
Nigeria	-	-	-	-	-	-	-	1,449	-	-	-	-	1,449

(Honduras, Costa Rica, Guatemala & Nicaragua)	1,360	600	1,980	3,120	3,342	4,363	2,520	2,345	2,189	3,611	1,776	1,740	28,946
Oman	-	-	-	-	4	1,196	1,143	495	-	-	-	105	2,943
Peru	-	-	-	-	1,000	1,411	1,611	875	422	-	-	-	5,319
Philippines	-	-	-	-	-	-	-	-	-	750	-	-	750
Rwanda	4,880	500	2,110	2,125	750	285	400	350	375	-	-	-	11,775
Senegal	-	-	-	-	-	-	-	-	833	1,021	1,000	-	1,854
Sierra Leone	-	-	-	-	-	61	32	1,000	-	-	-	-	1,093
Somalia	-	-	-	343	1,150	1,400	1,400	1,200	450	-	-	-	5,943
Sri Lanka	100	200	200	383	300	400	450	612	2,824	2,700	3,200	2,800	14,169
Sudan	-	-	-	-	-	-	-	-	896	2,858	2,500	2,400	8,654
Country	**1993 – 1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**
Swaziland	-	-	-	210	828	8	-	-	-	-	-	-	1,046
Tajikistan	-	-	-	-	-	-	-	-	-	7	-	100	107

Tanzania	-	-	300	-	-	-	300	600	-	-	-	-	1,200
Thailand	-	-	-	77	2,823	2,152	1,499	718	-	-	8	-	7,277
Tunisia	-	-	-	-	-	-	-	-	-	-	-	1,247	1,247
Uganda	1,000	-	-	-	-	-	-	-	-	-	500	-	1,500
Yemen	-	-	78	3,892	1,678	1,946	1,028	750	750	773	754	800	12,449
Zambia	-	-	-	-	-	12	772	1,240	450	-	-	-	2,474
Zimbabwe	-	-	-	2,180	1,743	1,905	523	-	-	-	-	-	6,351
****ITF**	-	-	-	-	6,175	10,141	12,684	14,000	10,000	9,941	9,920	-	72,861
Total (Including Other Expenditures)	$71,664	$36,129	$55,301	$74,992	$82,236	$110,746	$91,116	$106,929	$118,104	$180,263	$122,281	$ 57,052*	$1,105,410

While being estimated as $55M, it was funded as $65M for 2006.[340]

** The amounts of U.S. donations to ITF according to ITF[341], differs from those of "To Walk to the Earth in Safety, 6th Edition"[342]

[340] White House Website, http://www.whitehouse.gov/omb/expectmore/detail/10001103.2004.html (accessed 9 October 2007).

[341] ITF Website, http://www.itf-fund.si/donatorji/donatorji.asp?vecerje=0&walk=0&id_donator=-1&leto=-1&sum=2 (accessed 11 October 2007).

[342] To Walk to the Earth in Safety, 6th Edition, 49-53.

Table 15. U.S. Multi Year Mine Action Contributions to U.N.[343]

	1998	1999	2000	2001	2002	2003	2004	2005	Total
Advocacy & Prevention: Campaign Support	$0	$0	$20,893,860	$0	$0	$0	$0	$0	$20,893,860
Integrated Mine Action:	$10,571,000	$51,670,182	$0	$50,963,000	$0	$0	$37,874,000	$59,427,000	$210,505,182
Mine Awareness: Education	$2,556,438	$0	$2,986,995	$0	$0	$0	$112,000	$0	$5,655,433
Mine Awareness: General / Unspecified	$0	$0	$500,000	$40,000	$0	$0	$773,000	$0	$1,313,000
Mine Awareness: Training	$0	$0	$4,363,000	$0	$0	$0	$0	$0	$4,363,000
Mine Clearance: Demining	$0	$0	$9,211,144	$1,400,000	$0	$0	$111,593,000	$9,225,000	$131,429,144
Mine Clearance: Equipment	$16,690,000	$71,000	$7,052,984	$3,653,000	$0	$0	$0	$0	$27,466,984
Mine Clearance: General / Unspecified	$0	$1,290,000	$7,615,500	$6,345,000	$0	$0	$8,724,000	$16,442,000	$40,416,500
Mine Clearance: Mapping	$0	$0	$1,196,000	$0	$0	$0	$0	$0	$1,196,000
Mine Clearance: Quality Assurance	$0	$0	$4,363,000	$0	$0	$0	$0	$0	$4,363,000
Mine Clearance: Training	$9,610,000	$2,015,000	$7,824,405	$0	$0	$0	$0	$0	$19,449,405
	1998	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Total**

[343] Data is derived from U.N. Mine Investment Website, http://www.mineactioninvestments.org/frameset.asp (accessed 10 October 2007).

Research & Development: Equipment Development	$0	$0	$2,974,730	$0	$0	$0	$0	$0	$2,974,730
Research & Development: General / Unspecified	$0	$0	$0	$0	$0	$0	$450,000	$0	$450,000
Victim Assistance: General / Unspecified	$0	$0	$4,363,000	$0	$0	$0	$923,000	$900,000	$6,186,000
Victim Assistance: Medical	$0	$0	$0	$0	$0	$0	$400,000	$0	$400,000
Victim Assistance: Physical Rehabilitation	$0	$0	$4,363,000	$0	$0	$0	$0	$0	$4,363,000
Victim Assistance: Prosthetics / Orthotics	$0	$1,800,000	$0	$450,000	$0	$0	$0	$0	$2,250,000
Victim Assistance: Vocational Rehabilitation	$0	$0	$876,714	$0	$0	$0	$0	$0	$876,714
Year Total:	**$39,427,438**	**$56,846,182**	**$78,584,332**	**$62,851,000**	**$0**	**$0**	**$160,849,000**	**$85,994,000**	**$484,551,952**

The Office of Weapons Removal and Abatement in the U.S. Department of State's Bureau of Political-Military Affairs has awarded a total of more than $2.2 million to twenty-three NGOs in 2007. These grants, described below, augment the U.S. Department of State's projected FY 2007 budget of over $65.3 million for humanitarian mine action and small arms/light weapons abatement.[344] The funds transferred to the NGOs by the U.S. in 2007 are as follows:

- $199,914 to Norwegian Peoples Aid to develop the South Sudan De-mining Commission's capacity to survey landmine and explosive remnants of war infestation there; and to improve the Cambodian Mine Action and Victims Assistance Authority's national capacity by developing the collection, management and dissemination of information on mine action in that country.
- $199,897 to the Demining Agency for Afghanistan to provide vocational training to 120 former humanitarian de-miners in Afghanistan.
- $187,084 to the International Eurasia Press Fund to support the Tartar Azerbaijan Mine Victims Association and establish regional branches in Azerbaijan's Aghstafa and Fizuly regions.
- $136,245 to MAG America to destroy a hazardous stockpile of unexploded ordnance (UXO) at a metal recycling facility in Laos, and educate Lao scrap metal dealers about UXO hazards; and to conduct an assessment mission in Senegal building on existing data about the explosive hazards and small arms/light weapons problems there, determine the type of intervention required, and establish the feasibility of implementing related abatement projects.
- $128,075 to Afghanistan Technical Consultants to provide low-cost community-based landmine clearance in Afghanistan, thereby assisting the livelihood of poor villagers and increasing their food security.
- $115,203 to the Humpty Dumpty Institute to expand a landmine survivors assistance mushroom-growing project in Quang Tri province, Vietnam; and to increase its own capacity to initiate new proposals linking U.S. food aid, mine action, and subsequent agricultural and economic development.
- $109,907 to The Marshall Legacy Institute to support a series of fund-raising athletic runs by Slovenia's Ambassador to the United States to benefit the International Trust Fund for Demining and Mine Victims Assistance; to support the Children Against Mines Program (CHAMPS) efforts to rehabilitate three young Bosnian landmine survivors; and to

[344] U.S. Department of the State, Office of the Spokesman, Media Note, May 29, 2007 "New Grants to Deal With Explosives Remnants of War and Landmines" http://www.state.gov/r/pa/prs/ps/2007/may/85717.htm (accessed 16 October 2007).

provide six mine detecting dogs to a country that receives assistance from the U.S. Humanitarian Mine Action Program.

- $100,000 to **the Mine Clearance Planning Agency** to continue the clearance of landmines and explosive remnants of war in Afghanistan.
- $100,000 to **Shamshad TV** to create and broadcast mine risk education public service messages and dramas in Pashto and Dari to alert the populations of Afghanistan, Pakistan, and Iran about the dangers of landmines and explosive remnants of war.
- $100,000 to **the Centro Integral de Rehabilitaticion de Colombia** to assist survivors of landmines and explosive devices in the department of Santander, Colombia.
- $100,000 to **Viet-Nam Assistance for the Handicapped** to create a pilot program to teach mine risk education in Nghe An province, Vietnam.
- $99,652 to **DanChurchAid** to foster public support in Burundi for community disarmament of small arms/light weapons via the national Council of Churches of Burundi, and to produce publicity in support of the Government of Burundi's disarmament program.
- $99,500 to **Cleared Ground Demining** to provide a roving Explosive Ordnance Disposal capability to reduce the impact of explosive remnants of war in Guinea-Bissau, to be supported by matching funds from other donors.
- $99,250 to **the Iraq Health and Social Care Organization** to develop the capacity of the Iraqi government and local non-governmental organizations to conduct mine risk education there. ("Mine risk education" includes teaching about the dangers of unexploded ordnance, including any unexploded cluster munitions and abandoned ordnance, as well as the risks of entering mined areas or tampering with landmines.)
- $95,250 to the **Survey Action Center** to develop and validate a predictive tool for identifying communities and suspected hazard areas in Afghanistan that have the highest probability of creating new victims, thereby contributing to the efficient distribution of scarce mine action resources in order to reduce the threats to those communities and lower victim levels.
- $85,638 to **Cranfield University** to develop quality- and performance-management guidelines for mine action in Afghanistan and Laos.
- $75,000 to **the Polus Center for Social & Economic Development** for a matching grant to support **the CoffeeLands Landmine Survivors Trust Awareness project** to promote coffee companies' investing in landmine survivors assistance; and a related mine survivors assistance project.
- $61,722 to **Catholic University** to further the development of an autonomous landmine detection system based on a hovercraft platform.

- $55,000 to **Freedom Fields USA** for landmine clearance in Battambang province, Cambodia, to be matched by private funds.
- $50,000 to **the HALO Trust** to clear landmines in the K5 mine belt in Northwest Cambodia, to be matched by private funds.
- $30,000 to **Counterpart International** for its "Safe Farms, Safe Schools" project to reduce explosive remnants of war contamination in Quang Binh province, Vietnam, build 10 safe playgrounds in impacted areas, and teach mine risk education.
- $20,000 to **Clear Path International** to support the "AbilityTrek" bicycle tour across the United States by amputee endurance cycler Dan Sheret to raise at least $60,000 in new funds for war victims in Cambodia and Iraq.
- $11,657 to **the Mine Action Information Center at James Madison University** to create a catalog of global training and education opportunities for organizations that deal with small arms/light weapons, landmine, and explosive remnants of war reduction.

4. International Trust (ITF) Funds

The International Trust Fund for Demining and Mine Victims Assistance (ITF) was established by the government of the Republic of Slovenia on 12 March 1998.[345]

First established to help Bosnia and Herzegovina its landmine problem, ITF expanded its operations to the other affected countries in South-Eastern Europe (SEE), including Albania, Croatia, Macedonia and Serbia and Montenegro.[346] After being asked by mine-affected countries and donors to expand operation to other mine-affected regions and countries, ITF's Board of Advisers—which included the following twenty-nine members (The number of members increased to thirty-two by inclusion of Slovakia, Spain and Serbia)[347]: Austria, Belgium, BiH, Canada, Croatia, Croatia Without Mines, the Czech Republic, Denmark, the European Union, France, the Geneva International Centre for Humanitarian Demining (GICHD), Germany, the Institute for Rehabilitation of the Republic of Slovenia (IRRS), Ireland, Japan, Korea, Kuwait, Luxembourg,

345 Dorijan Maršič and Iztok Hočevar, *ITF: A Look at the Past, Present and Future of Mine Action*, Journal of Mine Action, Issue 9.1, August 2005, International Trust Fund for Demining and Mine Victims Assistance Website: http://maic.jmu.edu/JOURNAL/9.1/Focus/marsic/marsic.htm (accessed 14 October 2007).

346 ITF Website, http://www.itf-fund.si/dokumenti/dokument.asp?id=2 (accessed 14 October 2007).

347 ITF 2006 Report, 12, http://www.itf-fund.si/docdir/ITF%20Annual%20Report%202006.pdf (accessed 14 October 2007).

Norway, Qatar, the Red Cross of Slovenia, the Republic of Slovenia, SPEM (a Slovenian public relations company), the Survey Action Centre, Sweden, Switzerland, the United Nations Development Program (UNDP), the United Kingdom and the United States—approved the extension of ITF operations to Cyprus and the Caucasus (Armenia, Azerbaijan and Georgia).[348]

To reach the desired funds needed for landmine action, ITF relies on a wide variety of private and public donors in SEE. In order to ensure that the donations are useful, ITF maintains close coordination with the governments and mine action centers of the mine affected countries.[349]

ITF began its fund-raising efforts with symbolic donations from Slovenia and the U.S. in May 1998 ($1.45 million was raised in 1998 from donors and matched[350] by the U.S.[351]) The organization raised $30,750,883 in only one year[352] (year 2006) and $236,164,660 overall since beginning its fundraising efforts[353] by donations from over 100 donors.[354] A general overview of donation trends illustrates the substantial rise in fundraising.

The U.S. uses ITF as the means for fund support (overall U.S. contributions total $101,075,210[355]) to mine action in the Balkans.[356]

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348 Maršič & Hočevar, ITF: A Look at the Past, Present and Future of Mine Action.

349 ITF Website, http://www.itf-fund.si/dokumenti/dokument.asp?id=2 (accessed 14 October 2007).

350 ITF Website, http://www.itf-fund.si/donatorji/donatorji.asp?vecerje=0&walk=0&id_donator=-1&leto=1998&sum=2 (accessed 14 October 2007).

351 The Matching-Fund means that for every dollar that the ITF raises from donors, the US matches it with an additional dollar, so the effect of the donation is thus doubled. This later proved to be a "magical formula" that attracted many new donors such as Norway, Croatia, Canada, the European Union, Germany, Switzerland, Slovenia, the United Kingdom and many other countries, companies and individuals that also account for a major share of the ITF fund-raising. Slovenian government publications, "ITF-Slovenia July 2004" Report, http://www.ukom.gov.si/eng/slovenia/publications/facts/itf.pdf (accessed 14 October 2007).

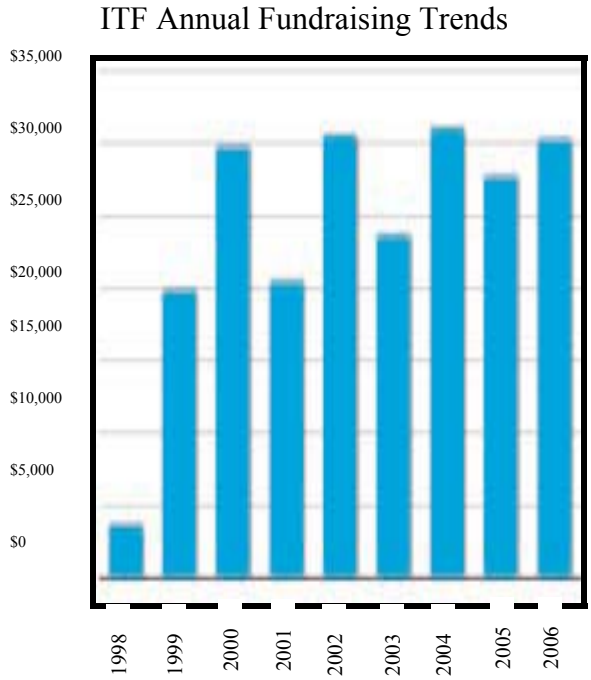
352 ITF 2006 Report, 8, http://www.itf-fund.si/docdir/ITF%20Annual%20Report%202006.pdf (accessed 14 October 2007).

353 ITF Website, http://www.itf-fund.si/donatorji/donatorji.asp (accessed 6 October 2007).

354 ITF 2006 Report, 13, http://www.itf-fund.si/docdir/ITF%20Annual%20Report%202006.pdf (accessed 15 October 2007).

355 ITF Website, http://www.itf-fund.si/donatorji/donatorji.asp?vecerje=0&walk=0&id_donator=66&leto=-1&sum=2 (accessed 15 October 2007).

Table 16. ITF Annual Fundraising Trends[357]



Year	Donations
1998	**2,900,000.00**
1999	**19,450,132.28**
2000	**29,411,113.21**
2001	**20,534,381.03**
2002	**30,564,333.74**
2003	**22,900,106.09**
2004	**30,674,243.82**
2005	**27,785,654.66**
2006	**30,750,883.38**
2007	**21,122,930.54**
	As of 14 October 2007)

For all money raised, ITF takes an overhead of 3 percent to cover costs connected to the solicitation process: awarding, monitoring and supervision of contract, project evaluation and reporting. The distribution of ITF administration and project costs in 2006 was: salaries 55.3% , supplies 19.1%, external services 9.8%, fund raising expenses 7.1%, insurance 3.4%, printed materials 1.5%, assets 1.4%, other costs 1.3%, seminars and training 1.1%.[358] Eighty percent of the funds raised were spent on de-mining operations, about half of which went to the operations held in Bosnia and Herzegovina.[359] With the help of this money, 13,355 landmines and 14,266 Unexploded Ordnance were

356 Jenny Lange, "Funding Mine Risk Education, Saving Lives Around the Globe," *Journal of Mine Action*, Issue 6.3, http://www.maic.jmu.edu/JOURNAL/6.3/features/lange/lange.htm (accessed 15 October 2007).

357 ITF 2006 Report, 17.

358 ITF 2006 Report, 24.

359 Lt Col Klaus-Peter Koschny, MASG in the Balkans, Journal of Mine Action, Issue 7.2, August 2003, German Permanent Mission to the United Nations, http://www.maic.jmu.edu/Journal/7.2/focus/koschny/koschny.htm (accessed 15 October 2007).

destroyed and 24,310,985m^2 of area cleared[360]—more than two thirds of all cleared territory so far.[361] The administration and project costs covered by the fee also include the operating expenses of the ITF Headquarters at Ig and the Implementation Offices in Croatia and Bosnia and Herzegovina, monitoring visits by ITF staff in the field, organization of meetings of the Board of Advisors as well as the organization of workshops and production of reports and related materials.[362]

ITF ensures donors their contributions are spent effectively and efficiently by providing visibility of donations. In addition to that, donors are named openly in periodic ITF publications and reports.[363]

ITF experience in ongoing mine action support activities grew significantly in recent years. While cost of de-mining was in the past about U.S. $50 per square meter, ITF states that they are now able to award contracts at a maximum of U.S. $2.3 per square meter.[364] In addition, administrative costs were approximately four times higher before ITF.[365]

ITF's funding mechanism and source selection process for de-mining are as follows:[366]

- ITF automatically puts out the projects to open solicitation provided that the project has matching funds. If not, the priorities of the projects are decided by the respective national authority, typically the Mine Action Centre (MAC).
- After analyzing the appeal from MAC, the ITF will put out the project to open solicitation (if accepted by ITF).

360 ITF Website, http://www.itf-fund.si/demining/polja.asp?id_tip=1&id_drzave=1 (accessed 15 October 2007).

361 Quarterly Of The Hans-Böckler-Foundation, SEER, South-East Europe Review for Labor and Social Affairs, Volume 5, Number 4, March 2003, http://www.boeckler.de/pdf/south_east_europe_review_2002_04.pdf(accessed (accessed 15 October 2007).

362 Regional Cooperation in Mine Action: The Case of South-Eastern Europe, Geneva, November 2005, 6, http://www.gichd.org/fileadmin/pdf/publications/Regional_Cooperation_in_MA_2005.pdf (accessed 14 October 2007).

363 Maršič & Hočevar, ITF: A Look at the Past, Present and Future of Mine Action.

364 Regional Cooperation in Mine Action: The Case of South-Eastern Europe.

365 Quarterly Of The Hans-Böckler-Foundation, SEER, South-East Europe Review for Labor and Social Affairs, Volume 5, Number 4, March 2003, 69.

366 Ibid., 7.

- After solicitation, an Evaluation Commission made up of the ITF, the donor or donors, the MAC of the country where the activities are to be implemented and a representative of the United Nations Development Program (UNDP) selects the winning bid by a physical meeting.
- Criteria for selection for a contract in South-Eastern Europe include: the bidding organization's experience in the relevant area of mine action, the equipment it has available and its successful accreditation to operate in one of the countries of the region with a demonstrable existing capacity.[367]
- After receiving bids, ITF evaluates the bids technically. Then, the targeted minefields are examined by ITF Implementation Office staff prior to de-mining, to determine the de-mining priority.
- The bulk of donations to the ITF are being allocated to mine and battle area clearance.

Knowing that increasing the number of donors will be tough, ITF tries to maintain good relationships with the current donors and find new public and private donors. Another fundraising tool ITF uses is motivating donors to make unilateral contributions to any contaminated area.[368]

[367] Rebecca Roberts & Gary Littlejohn, Maximizing the Impact Tailoring Mine Action to Development Needs, PRIO Report 5/2005, 37, http://www.prio.no/files/file47211_amac_report_5-2005_final.pdf?PHPSESSID=9d49c5832ceab87a7de69d97d70a42eb (accessed 15 October 2007).

[368] Maršič & Hočevar, ITF: A Look at the Past, Present and Future of Mine Action.

Table 17. Overall Donations to ITF[369]

DONOR	DONATION
Adopt-a-Minefield	**3,158,541.70 USD**
4 Entity - Alma Suljevic	**1,363.37 USD**
Accord 92	**4,543.00 USD**
Adria Airways	**31,718.00 USD**
Amway d.o.o.	**33,000.00 USD**
Atelje D.I.A.L.O.G.	**6,230.00 USD**
Austria	**3,203,234.81 USD**
BAGS ENERGOTEHNIKA	**3,098.16 USD**
Bank Austria	**1,353.43 USD**
Belgium	**282,403.65 USD**
BH MAC "Prijatelji protiv mina"	**8,183.22 USD**
Bosnia and Herzegovina	**10,890,336.90 USD**
Branko Đurić - Đuro	**4,098.93 USD**
Brčko District Government	**426,726.37 USD**
Canada	**9,685,377.83 USD**
Canton Bosansko-Podrinjski Goražde	**32,118.09 USD**
Canton Central Bosnian	**130,123.78 USD**
Canton Sarajevo - Ministry of Urban Planning and Environmental Protection	**242,539.29 USD**
CARE International	**97,557.00 USD**
Children of Armenia Fund	**100,000.00 USD**
Cimermqcic Zdenka	**35.78 USD**
Community Center Sarajevo, BH	**463,464.55 USD**
Community Goražde	**13,536.97 USD**
Community Hadžići	**39,692.39 USD**
Community Ilidža	**64,565.94 USD**
Community Ilijaš	**10,892.56 USD**
Community Novi grad Sarajevo	**31,620.86 USD**
Community Stari grad	**686,067.42 USD**
Community Vječe Vogošca	**30,216.83 USD**
Coordinametni Donne	**25,533.28 USD**
Croatia	**7,759,906.81 USD**
Croatia without mines	**157,007.90 USD**
CROMAC	**169,113.96 USD**
Czech Republic	**615,324.18 USD**
DAEWOO (in kind)	**29,805.00 USD**
DanChurchAid	**903,177.44 USD**
Dean Haas	**51.33 USD**
Denmark	**290,319.40 USD**

DONOR	DONATION
Euromarketing Pale	**9,972.85 USD**
Europa Press Holding	**24,385.00 USD**
European Agency for Reconstruction	**779,514.70 USD**
European Union	**7,671,935.43 USD**
Foundation World Without Mines	**106,019.99 USD**
France	**546,388.14 USD**
Fundraising event "Dobra žoga"	**58,685.52 USD**
Germany	**16,729,846.65 USD**
Girls Scouts	**425.00 USD**
Global Care Unlimited	**20,000.00 USD**
Handicap International	**777,230.85 USD**
HERCEGBOSANSKE ŠUME D.O.O.	**273,504.30 USD**
Hungary	**54,000.00 USD**
Ireland	**498,265.84 USD**
Islamic Conference	**150,000.00 USD**
Jaki and Ščetinin, architects	**907.33 USD**
Japan/UNDP	**1,000,000.00 USD**
Josef MLaposa	**100.00 USD**
Kampos Iztok	**247.00 USD**
Karlovac County	**194,191.45 USD**
Korea	**140,000.00 USD**
Kuwait	**250,000.00 USD**
Landmine Survivors Network	**450,000.00 USD**
Liechtenstein	**37,689.36 USD**
Lions Club Brođanka	**10,652.25 USD**
Lions Club Zrinjevac	**2,285.70 USD**
Luxembourg	**242,456.78 USD**
Maraska d.d.	**758,460.19 USD**
Marshall Legacy Institute	**287,363.30 USD**
Miklošič	**439.80 USD**
Miro Senica in odvetniki	**2,055.20 USD**
Mobitel d.d.	**32,890.55 USD**
Municipality Bihać	**37,985.85 USD**
MUNICIPALITY TRNOVO	**140,390.53 USD**
Municipality Vogošča	**27,296.84 USD**
Netherlands	**5,017.61 USD**
Newspaper "Finance"	**11,204.41 USD**
Night of a thousand Dinners	**178,513.72 USD**

[369] ITF Website, http://www.itf-fund.si/donatorji/donatorji.asp (accessed 14 October 2007).

DONOR	DONATION
Dijana Pleština	**30,538.71 USD**
Diners Club Adriatic	**125,000.00 USD**
Đurđa Otržan	**10,000.00 USD**
EC Delegation in Croatia	**4,469,758.49 USD**
Elektroprivreda HZ HB	**186,150.04 USD**
Elektroprivreda Mostar	**382,008.71 USD**
Elting Pale	**18,587.34 USD**
Raiffeisen Krekova Banka d.d.	**5,265.20 USD**
Rebele Rowland & Pat	**1,000.00 USD**
Red Cross R Slovenia	**59,711.00 USD**
Rehabilitation Institute RS	**79,276.70 USD**
Roots of peace	**252,135.00 USD**
Rotaract Club Karlovac	**2,788.06 USD**
Rotary Club International Calvia	**10,783.20 USD**
Rotary Club Ljubljana-Emona	**104,550.25 USD**
Rotary Club of San Rafael	**41,351.00 USD**
Rotary Club Wien-Nordost	**541,618.98 USD**
Rotary International District 1910-4096	**33,660.07 USD**
S.O.SUBOTICA and MZ PALIĆ	**6,000.00 USD**
Sebastijan Gorenc	**167.28 USD**
Serbia	**628,549.87 USD**
SIEMENS	**10,737.00 USD**
Slovenia	**5,473,260.17 USD**
Slovenian Table Tennis Association	**7,310.00 USD**

DONOR	DONATION
Norway	**37,811,049.92 USD**
Nova Ljubljanska Banka	**6,837.25 USD**
Otto Bock	**7,894.00 USD**
Positive Play	**8,462.75 USD**
Privata	**867.00 USD**
prof. Janez Koželj	**446.87 USD**
Qatar	**199,980.00 USD**
Spain	**779,700.09 USD**
SPEM	**50,102.00 USD**
Sweden	**1,277,772.22 USD**
Swiss Federation for Mine Action	**138,346.00 USD**
Switzerland	**3,664,204.87 USD**
United Kingdom	**3,378,591.58 USD**
United Nations Association of the USA (UNA-USA)	**1,000.00 USD**
United Nations Development Program In BIH	**1,469,074.19 USD**
United Nations Development Program	**2,158,304.65 USD**
United States of America	**101,075,214.00 USD**
United States Tennis Association, Inc	**29,000.00 USD**
USARDSG-UK (Bled Workshop)	**44,000.00 USD**
Vietnam Veterans of America Foundation	**402,267.00 USD**
VMA-Kukes - Victims of Mine and Arms Association	**14,690.72 USD**
VMA-Kukes-Mine and Weapon Victims Association	**10,600.00 USD**
Walk across Slovenia	**5,718.49 USD**
Walnut Creek United Methodist Church	**7,127.81 USD**
TOTAL	**236,164,660.75 USD**

Table 18. Comparison of Annual Mine Action Contributions from Other Major Donor Nations[370]

	NORWAY	JAPAN	U.K.	CANADA	GERMANY	NETHERLANDS	SWEDEN	DENMARK	SWITZERLAND	AUSTRALIA	ITALY	FINLAND
2005	$36.5 M	$39.3 M	$21.4 M	$20.5 M	$21.1 M	$19.3 M	$11.7 M	$11.3 M	$12.1 M	$8.9 M	$4.5 M	$5.9 M
2004	$34.3 M	$42.8 M	$20.4 M	$22.6 M	$18.7 M	$19.3 M	$11.4 M	$13.7 M	$10.9 M	$5.7 M	$3.2 M	$6 M
2003	$28.6 M	$13 M	$20 M	$22.5 M	$22.1 M	$12.1 M	$12.7 M	$11.9 M	$8.8 M	$5.5 M	$5.8 M	$6.3 M
2002	$25.4 M	$49.7 M	$18.5 M	$15.1 M	$19.4 M	$16 M	$7.3 M	$10.6 M	$8.3 M	$7.8 M	$8.7 M	$4.5 M
2001	$20 M	$7.5 M	$15.4 M	$15.5 M	$12.3 M	$13.9 M	$9.8 M	$14.4 M	$9.8 M	$6.6 M	$5.1 M	$4.5 M
2000	$19.5 M	$12.7 M	$21.5 M	$11.9 M	$14.5 M	$14.2 M	$11.8 M	$13.4 M	$7.4 M	$7.3 M	$1.6 M	$4.8 M
1999	$21.5 M	$16 M	$20.4 M	$15.2 M	$11.4 M	$8.9 M	$9.8 M	$7 M	$5.7 M	$7.9 M	$5.1 M	$5.7 M
1998	$24 M	$6.3 M	$6.5 M	$9.5 M	$10.1 M	$9.3 M	$16.6 M	$6.2 M	unknown	$6.8 M	$12 M	$6.6 M
1997	$16.7 M	Pre 1998 approx. $30 M	$6.6 M	$3.0 M	$4.9 M	$10.2 M	$11.9 M	$5.4 M	$4.0 M	$7.3 M	$10.5 M	$4.5 M
1996	$13.5 M		$6.3 M	$4.0 M	$7.9 M	$10.7 M	$10.4 M	$8 M	$2.6 M	$5.8 M	_	$1.3 M
1995	$11.6 M		$6.9 M	$1.5 M	$0.8 M	_	$5.1 M	$2.3 M	$4.1 M	$5.5 M	_	$0.7 M
1994	$4.0 M		$6.3 M	$2.9 M	$0.5 M	_	$2.6 M	$2.0 M	$3.5 M	_	_	$1.3 M
1993	_		$5.1 M	$2.2 M	$0.3 M	_	$5.5 M	$1.7 M	$2.7 M	_	_	_
1992	_		_	$1.7 M	_	_		$1.9 M	_	_	_	_
TOTAL	**$255.6 M**	**$217.3 M**	**$175.3 M**	**$148.1M**	**$144 M**	**$133.9 M**	**$126.6 M**	**$109.8 M**	**$79.9 M**	**$75.1 M**	**$56.5 M**	**$52 M**

370 Landmine Monitor 2006 Report.

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IV. CURRENT STATUS AND THE GEOGRAPHY OF THE MINE PROBLEM

A. GENERAL SITUATION

The landmine problem is so widespread around the world that no single source could hope to cover the actual extent of the problem. The figures on landmine contamination have reached a point that terrifies whoever deals with the issue.

According to the International Campaign to Ban Landmines **(**ICBL), every region in the world is mine-affected. More than seventy-five countries are affected to some degree by landmines and/or unexploded ordnance.[371]

The Geneva International Center for Humanitarian De-mining (GIHCD) states the figures on contamination as seventy-eight States and eight other mine-affected areas.[372] Breakdown of the affected areas is as follows:

- **Africa**: Angola, Burundi, Chad, Congo (Brazzaville), Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, Guinea-Bissau, Malawi, Mauritania, Mozambique, Namibia, Niger, Rwanda, Senegal, Somalia, Sudan, Swaziland, Uganda, Zambia, Zimbabwe (Somaliland)
- **Americas:** Chile, Colombia, Cuba, Ecuador, Nicaragua, Peru, Venezuela
- **Asia/Pacific:** Afghanistan, Bangladesh, Burma, Cambodia, China, India, Korea, Democratic People's Republic of Korea, Republic of Laos, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam (Taiwan, Nagorno-Karabakh)
- **Europe/Central Asia:** Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Croatia, Cyprus, Denmark, France (Djibouti), FYR Macedonia, Georgia, Greece, Kyrgyzstan, Moldova, Russia, Serbia & Montenegro, Slovenia, Tajikistan, Turkey, Ukraine, Yugoslavia, UK (Falklands), Uzbekistan (Abkhazia, Chechnya, Kosovo)
- **Middle East/North Africa:** Algeria, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Syria, Tunisia, Yemen, (Palestine, Western Sahara)

The extent of the contamination throughout the world far exceeds the expectations of most of the officials. The fact that more than half of the world's countries are

371 Landmine Monitor Website, http://www.icbl.org/problem/what (accessed 26 September 2007).

372 GICHD Website, http://www.gichd.org/mine-action-and-erw-facts/faq/countries-affected/ (accessed 7 November 2007).

contaminated with landmines is very serious. This contamination causes the death or injury of 18,000 men, women and children, nearly 90 percent of who are civilians, each year.[373]

Roberts and Williams stated in "The Enduring Legacy of Landmines" that there were already at least 250,000 landmine-disabled people in the world in 1995, and that number growing. They added that landmines continue to claim 500 victims a week—the **equivalent** of 26,000 new victims each year.[374] Also the amputation rates in heavily contaminated countries are horrifying: Cambodia, 1 per 236 people; Angola, 1 per 470 people; Northern Somalia, 1 per 1,000 people.[375]

Today it is almost impossible to know the exact locations and numbers of existing landmines and minefields. Available data is mostly of a rough estimate (except for mature environments). The presence of landmines has been pieced together from partial records, rumors and unfortunately, accounts of victims.[376]

Today, estimates of total landmines range from 110 million[377] to 60 million[378]. The report (Hidden Killers: The Global Landmine Crisis) released by The U.S. Department of State estimates that the total number of landmines in place around the world is approximately 30 to 50 percent lower than originally estimated, which puts the number closer to sixty million than 100 million.[379]

The United Nations projected in its 1994 report[380] that even if the proliferation of landmines were to be stopped in 1996, at 1994 funding rates it would still take almost

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373 Veterans of America Foundation Website, http://www.veteransforamerica.org/references/reports/landmines-a-humanitarian-disaster.html (accessed 30 September 2007).

374 Shawn Roberts & Jody Williams, *After the Guns Fall Silent: The Enduring Legacy of Landmines,* (Washington D.C.: Vietnam Veterans Of Vietnam Foundation, 1995), 3.

375 Arms Project (Human Rights Watch), Landmines, A Deadly Legacy, Physicians for Human Rights (U.S.), 1993, 143.

376 Hidden Killers, 1994 Report to the U.S. Congress.

377 UNICEF Website, http://www.unicef.org/sowc96pk/hidekill.htm (accessed 30 September 2007).

378 Hidden Killers: The Global Landmine Crisis.

379 Ibid.

380 ''*Assistance in Mine Clearance,*'' Report of the U.N. Secretary General, document A/49/357, September 1994, 6.

1,100 years to rid the world of all emplaced landmines. The same report projected one more stark reality—even focusing only on landmines that have the most direct impact on civilian populations, laid in or in the vicinity of cities and towns, roads and homes, would take more than three centuries of work at 1994's clearance and funding rates.

The most important reason for the unbelievable extent of mine use is the ease of laying and the very low cost ($3/landmine) of mine acquisition.[381] In addition, mines are very difficult to clear, especially if they have been in the ground for more than a year. Testimonials from de-miners in the field indicate that only about 100 m^2 can be cleared per day due to the significant amount of metallic clutter present in a typical post-conflict area.[382]

1. Numbers Showing the General Outline of Landmine Contamination

Although the exact numbers of uncleared landmines globally are not known for sure, some agencies have undertaken studies on those countries that are relatively stable. The studies do not provide the actual figures, but reasonable estimates depending on the international databases and careful surveys in the most seriously affected regions and countries.

The tables below will help to give a broader view about the extent of the contamination.

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[381] (It is quoted in International Campaign to Ban landmines (*Landmine Monitor*) literature in the preparation for the Ottawa anti-personnel landmines banning treaty. This $3 price must be understood as the price of the simplest Type 72A Chinese anti-personnel blast mines.)

[382] John Wayne Brooks, "*The Detection of Buried Non-Metallic Anti-Personnel Land Mines*," Huntsville, ALABAMA, 2000, http://www.delve.vub.ac.be/files/Brooks_Diss_WEB.pdf (accessed 7 November 2007).

Table 19. Extent of the contamination in some highly mined countries.

Country	UNLDB U.N. Database	HK98 Case Study[383]		United Nations Department of Humanitarian Affairs Figures[384]
		Low	High	
Angola	15,000,000	6,000,000	15,000,000	15,000,000
Eritrea	1,000,000	500,000	1,000,000*	-
Mozambique	3,000,000	1,000,000	1,000,000	-
Namibia	50,000	50,000	50,000	250,000
Afghanistan	10,000,000	5,000,000	7,000,000	10,000,000
Cambodia	6,000,000	4,000,000	6,000,000	10,000,000
Bosnia-Herzegovina	3,000,000	600,000	1,000,000	3,000,000
Croatia	3,000,000	400,000	400,000	3,000,000
Iraq	10,000,000	10,000,000	10,000,000	10,000,000
Somalia	1,000,000	1,000,000	1,000,000	-
Sudan	1,000,000	1,000,00	1,000,000	-
Nicaragua	108,297	85,000	85,000	-
Egypt	-	-	-	23,000,000
Iran	-	-	-	16,000,000
Rwanda	-	-	-	250,000

Table data is taken from "Hidden Killers" and UNICEF Website.

* Revised to 1.5 to 2 million mines based on the estimates of National De-mining Center in Asmara.[385]

Table 20. Regionally Apportioned Landmine Estimates[14]

Region	**UNLDB**	**HK 98 Low**	**HK 98 High**
Africa	21,818,250	11,310,000	22,246,000
Asia	29,776,193	22,975,000	26,995,000
Europe	7,793,842	2,876,842	3,276,900
Latin America	241,297	194,000	235,500
Middle East	49,108,795	49,474,988	49,501,193
TOTAL	**108,738,377**	**86,830,830**	**102,468,593**

Table data is based on "Hidden Killers" report.[386]

In the following sections, mine facts for the most-affected countries will be explained.

383 *Hidden Killers-1998.*The Global Landmine Crisis.

384 UNICEF Website, http://www.unicef.org/sowc96pk/hidekill.htm (accessed 7 November 2007).

385 *Hidden Killers-2001*: The World's Landmine Problem, http://www.state.gov/t/pm/rls/rpt/hk/2001/6961.htm (accessed 7 November 2007).

386 *Hidden Killers-1998.*The Global Landmine Crisis.

Global Contamination. Courtesy of ICBL webpage. http://www.icbl.org/lm/2006/maps/res/5-ProblM.EnglPost-LM2006-4col.pdf

Figure 7. Landmine Problem in the World

B. ASIA-PACIFIC

It is clear that there is an anti-personnel landmine problem in the East Asia and Pacific region because of present and past conflicts. Some of those conflicts are: the Second World War, the Korean conflict, the Vietnam War and other internal conflicts.[387] In particular, the Vietnam War opened up an opportunity for landmine producers all around the world and the subsequent conflicts enticed the industry to produce millions of landmines and send them to some of the poorest countries in the world to be used.[388]

Sixteen countries (shown below) as well as Taiwan in the Asia/Pacific region are mine affected. Of all those affected countries, Afghanistan is the most contaminated in the region; it is also, with more than 780 million square meters of contaminated land, one of the top mine-affected countries in the world.[389]

Table 21. Mine-Affected Countries in Asia-Pacific Region

Afghanistan	China	N. Korea	Pakistan	Thailand	Nagorno-Karabakh
Bangladesh	India	Laos	Philippines	Vietnam	Burma
Cambodia	Korea	Nepal	Sri Lanka	Taiwan	

UNICEF states that the region contains some of the most heavily mined countries in the world. Landmines have been devastating, especially for children living in nearly half of all villages in Cambodia and nearly one-quarter of all villages in Laos. Up to 3,500,000 landmines still cover Viet Nam, where over 100,000 people have been killed or injured since 1975.[390]

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387 UNICEF Report on *Impact of Landmines on Children in the East Asia and Pacific Region*, September 2003, 4, http://www.unicef.org/emerg/files/regional_assessment_final.pdf (accessed 7 November 2007).

388 Monin & Gallimore, *The devil's gardens, a history of landmines*, 67-68.

389 Landmine Monitor 2003 Regional Overview Report. Retrieved 7 November 2007 from http://www.icbl.org/lm/2003/asia-pacific.html#Heading1057.

390 UNICEF Website, http://www.unicef.org/media/media_23411.html (accessed 7 November 2007).

According to ICRC,[391] although there have been some advances in the mine situation in Afghanistan and Cambodia (the two worst-afflicted countries in Asia); there remain some significant challenges throughout the entire continent. The first and most significant challenge is the status of countries in the process of joining the Convention on the Prohibition of Anti-personnel Land Mines. Some countries keep laying mines, worsening the problem. For example, despite being severely criticized by the international community, Pakistan has recently decided to lay mines along its borders with Afghanistan in order to stop Pro-Taliban militia members from crossing into Afghanistan.[392]

The UNICEF Report[393] states that there are five landmine producers (China, Myanmar, Republic of Korea, Singapore and Vietnam, Republic of Korea, Singapore and Vietnam) in the East Asia and Pacific region. Despite the usage, most of the countries do not admit that they use landmines. Russia, Nepal and Myanmar (Burma) are the only three governments in Asia who admit to still using anti-personnel landmines, of which Myanmar's military is the most extensive user.[394]

391 International Committee of the Red Cross (ICRC) Website, http://www.icrc.org/Web/Eng/siteeng0.nsf/html/landmines-asia-010106 (accessed 7 November 2007).

392 IRIN, U.N. Office for the Coordination of Humanitarian Affairs, http://www.irinnews.org/report.aspx?reportid=62951 (accessed 7 November 2007).

393 UNICEF Report on Impact of Landmines on Children in the East Asia and Pacific Region, September 2003, 13.

394 Clifford McCoy, "*Myanmar, the world's landmine capital," Asia Times Newspaper*, Nov 4, 2006, http://www.atimes.com/atimes/Southeast_Asia/HK04Ae01.html (accessed 7 November 2007).

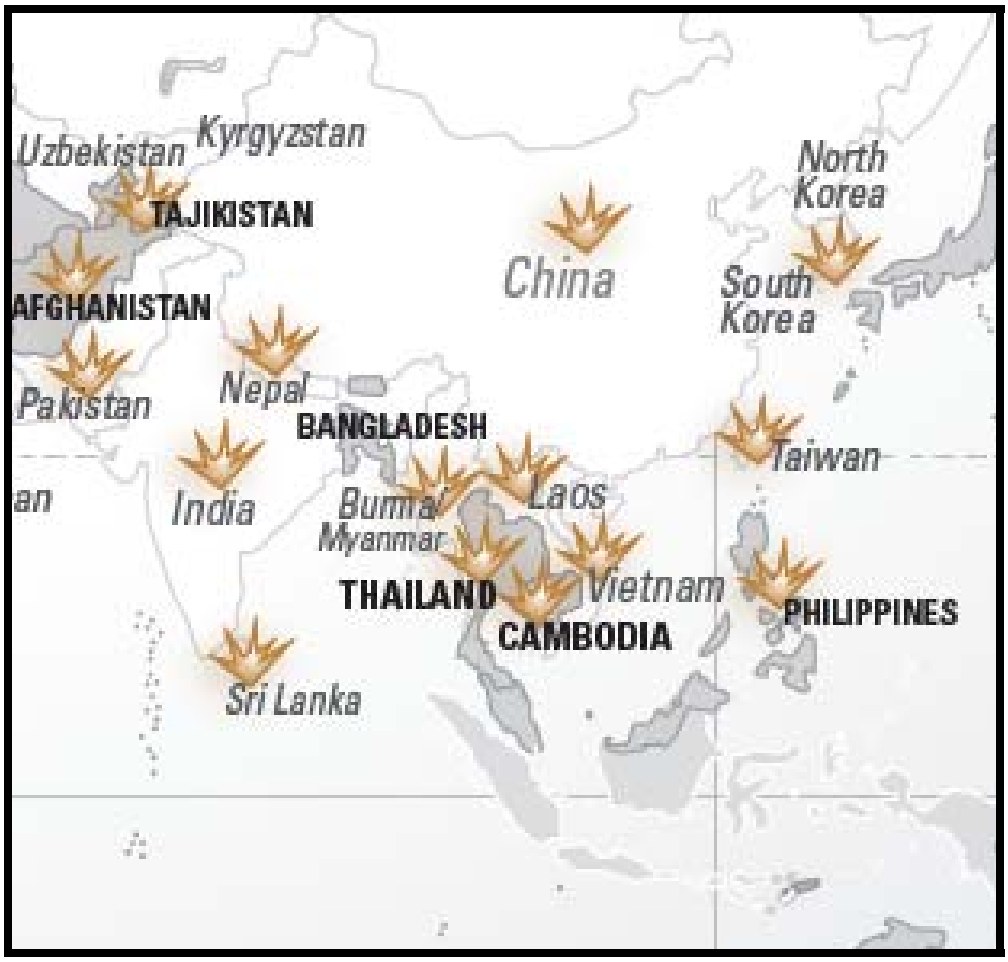

Figure 8. Mine situation in the region. Map is courtesy of ICBL website.

1. Mine Affected Countries in Asia Pacific-Region

a. Afghanistan

Besides being the most contaminated country in the region, Afghanistan is one of the top mine-affected countries in the whole world,[395] due to a conflict that lasted more than two decades after starting in the 1970s.[396] The extent of contamination is so large (approximately 2,368 Afghan communities[397]) that only two of Afghanistan's twenty-nine provinces are thought to be having no landmines. The most heavily mined provinces are Herat and Kandahar. Even the capital, Kabul, is mine-affected. Mine

395 Landmine Monitor 2003 Regional Overview Report.

396 Landmine Monitor 2006 Report.

397 Sarah Sensamaust, "Afghanistan Country Profile," *Journal of Mine Action*, Issue 9.2, February 2006, http://maic.jmu.edu/journal/9.2/profiles/afghanistan/afghanistan.htm (accessed 7 November 2007).

contamination covers as much as 724 million square meters.[398] Because of this significant extent, Afghanistan has been the first country to draw world attention to the problem.[399]

Landmines were first used in Afghanistan during the Soviet occupation (1979-89);[400] contamination continued during the period of the pro-Soviet ruling government (1989-92), the fighting between various factions in 1992-95, and the Taliban era from 1996 until September 2001. Some very limited contamination also continues as a result of military operations by and against the American-led coalition and ongoing factional fighting.[401]

In the war in Afghanistan, mines were an important weapon to both sides. Most of the antipersonnel landmines were laid by the Soviets, while the majority of the antitank mines were laid by the Mujahideen.[402] Most of them were laid from 1979-1992.[403]

The estimates about the number of landmines laid vary in a wide range. While some sources claim the figure is around four million,[404] others say it is around ten million.[405] There are also some very high estimates of over thirty million mines (while

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398 "Landmine Use in Afghanistan," *Human Rights Watch Backgrounder*, October 2001, http://www.hrw.org/backgrounder/arms/landmines-bck1011.htm (accessed 7 November 2007).

399 McGrath, Landmines and Unexploded Ordnance, A Resource Book, 14.

400 Sensamaust, "Afghanistan Country Profile."

401 Afghanistan's Millennium Development Goals Report 2005, 108, http://www.ands.gov.af/src/src/MDGs_Reps/FINALMDG%20%20REPORT%20_Saturday%201327.pdf (accessed 7 November 2007).

402 Roberts & Williams, After the Guns Fall Silent, 43.

403 Human Rights Watch Backgrounder Landmine Use In Afghanistan, October 2001, 3, http://www.hrw.org/backgrounder/arms/landmines-bck1011.pdf (accessed 7 November 2007).

404 To Walk The Earth In Safety: The United States Commitment To Humanitarian De-mining, Fourth Edition, September 2002, 26, http://www.state.gov/documents/organization/15050.pdf (accessed 7 November 2007).

405 *Children Affected by Armed Conflict in South Asia: A Review of Trends and Issues Identified Through Secondary Research*, A Discussion Paper Prepared For UNICEF Regional Office South Asia, 12, http://www.reliefweb.int/library/RSC_Oxford/data/RSC%20Reports%5CCAAC%20South%20Asia%20Regional%20report.pdf (accessed 7 November 2007).

considered unrealistic, some estimates even reach fifty million). These estimates include many non-metallic mines that are extremely hard to detect.[406]

The mines inflicted casualties without regard to affiliation. Cordesman and Wagner cite Mujahideen estimates of the number of Mujahideen soldiers and civilians killed or maimed by mines as 25,000-50,000 persons. This fact shows the extent of landmines' impact as the largest cause of Mujahideen casualties.[407]

According to the ICBL 2006 Report,[408] Mine Action Program for Afghanistan (MAPA) coordinates the world's longest established and biggest mine-action program, with about 9,500 Afghan de-miners. There are also several NGOs conducting de-mining in the country. Seven of the NGOs are Afghan entities (Working under the MAPA system); others are foreign de-mining organizations including the international NGOs HALO Trust and Danish De-mining Group (DDG). Besides these NGOs and national de-miners, there are some other international companies active in the country. The active companies are MineTech International, RONCO Consulting Corporation and DynCorp International. RONCO Consulting Corporation functions a bit differently from the others; it has provided humanitarian de-mining services under contract to the U.S. Department of State from 1989 until August 2005,[409] and now conducts de-mining for coalition forces at Bagram air base. DynCorp International also has been conducting humanitarian de-mining under contract to the U.S. Department of State.

b. Cambodia

Cambodia's landmine problem began with the country's involvement in the Indochina War in the 1960s. Later on, North Vietnam began laying landmines in the late 1960s and 1970s near Cambodia's borders during the Vietnam War.[410] The extensive use of antipersonnel mines by all sides during the Cambodian civil war from 1979 to

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406 Roy & Friesen, *Historical Uses of Antipersonnel Landmines*, 36.

407 Cordesman & Wagner, Lessons of Modern War, Volume III, 164.

408 Landmine Monitor 2006 Report.

409 Sensamaust, "Afghanistan Country Profile."

410 Erin Herring, *Journal of Mine Action*, Issue 9.2, February 2006, http://maic.jmu.edu/journal/9.2/profiles/cambodia/cambodia.htm (accessed 7 November 2007).

1991 caused Cambodia to have the highest percentage of mine amputees (one in every 236 Cambodians)[411] of any country in the world. Even after the signing of the peace agreement in 1991, minelaying continued.[412] It is estimated that as many as 40,000 Cambodians are amputees.[413] The 2007 Integrated Work Plan of Cambodia[414] states that there are about a thousand people dying per year due to landmines.

Since none of the warring factions in Cambodia conducted any significant mapping or marking of minefields,[415] estimates about the number of landmines buried varied widely. While landmine incident reports released by the Cambodian Red Cross and Handicap International predicted that between eight and ten million landmines remain in Cambodia,[416] the U.N. report on Assistance In Mine Clearance estimates the figure at around four to six million.[417] But the U.S. Report "To Walk the Earth In Safety"[418] revised the figures to between 300,000 and 1,000,000 landmines, considerably less than the previous estimates based on the data from the Cambodian Mine Action Center (CMAC) estimates.

There are three prominent de-mining organizations currently working in Cambodia. These are: CMAC, which started in 1992; the Hazardous Areas Life-Support Organization (HALO) Trust, which started working in Cambodia in 1991; and Mines Advisory Group (MAG), which began operations in November 1992. Also, the Royal Cambodian Armed Forces provided a fourth de-mining agency through its engineering

411 United Nations Report of the Secretary-General on Assistance In Mine Clearance, A/52/679, 11 December 1997 , 14.

412 Roberts & Williams, After the Guns Fall Silent: The enduring Legacy of Landmines, 121.

413 Alex Hewitt, Paul Lee-Archer & Brent Studd, Living With Landmines In Cambodia, Observations and Opinions, December 2000–January 2001, 6, http://www.rosecharities.net/livingwithlandmines.pdf (accessed 7 November 2007).

414 Integrated Work Plan 2007 for Mine Action in Cambodia, 1, http://www.cmac.org.kh/work_plan/iwp2007/executive_summary.pdf (accessed 7 November 2007).

415 Anti-personnel Landmines, Friend or Foe?, A study of the military use and effectiveness of anti-personnel mines, Published by ICRC, 34, http://www.icrc.org/Web/Eng/siteeng0.nsf/htmlall/p0654/$File/ICRC_002_0654.PDF!Open (accessed 7 November 2007).

416 Hewitt, Lee-Archer & Studd, Living With Landmines In Cambodia, 8.

417 United Nations Report of the Secretary-General on Assistance In Mine Clearance, A/52/679, 11 December 1997 , 14.

418 To Walk The Earth In Safety, Fourth Edition, 26.

battalion, which has worked mainly commercially, undertaking government contracts funded by the Asian Development Bank and World Bank.[419]

c. Vietnam

The landmine problem in Vietnam stems not only from Vietnamese emplacement, but also from Americans, as well as from the French who employed landmines from the 1950s onward.[420]

As a result of years of war, over 100,000 people have been killed or maimed by landmines and unexploded ordnance (UXO) until 1975.[421] Nationwide statistics released by the Ministry of Labor, Invalids and Social Affairs state that 38,849 of the casualties were due to landmine accidents.[422]

Although neither the French, North Vietnamese, South Vietnamese nor Americans kept proper records of their minefields, especially those dropped from the air,[423] there is a consistency in the estimates—both the U.S. "Hidden Killers" 2001 Report[424] and U.N. estimates[425] place the total number of landmines buried at up to 3,500,000. While the U.S. Report "To Walk the Earth in Safety"[426] estimates the contamination as 350,000–800,000 tons of landmines and Unexploded Ordnance (UXOs) scattered throughout all of Vietnam's sixty-one provinces and covering 16,478,000,000 square meters, Land Mine Monitor[427] estimates that 20 percent of Vietnam's land surface (or 66,578 square kilometers) is contaminated by landmines. However, U.N. estimates[428]

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419 Landmine Monitor 2006 Report.

420 Wendy Waldeck & Sarah Sensamaust, "Vietnam Country Profile," *Journal of Mine Action*, Issue 9.2, February 2006, http://maic.jmu.edu/journal/9.2/profiles/vietnam/vietnam.htm (accessed 7 November 2007).

421 U.N. Website, http://www.mineaction.org/country.asp?c=188 (accessed 7 November 2007).

422 Waldeck & Sensamaust.

423 ICRC, Anti-personnel Landmines, Friend or Foe?, A study of the military use and effectiveness of anti-personnel mines, 29, http://www.icrc.org/Web/Eng/siteeng0.nsf/htmlall/p0654/$File/ICRC_002_0654.PDF!Open (accessed 7 November 2007).

424 Hidden Killers 2001.

425 U.N. Website, http://www.mineaction.org/country.asp?c=188 (accessed 7 November 2007).

426 To Walk The Earth In Safety: Fourth Edition.

427 Landmine Monitor 2006 Report.

428 U.N. Website, http://www.mineaction.org/country.asp?c=188 (accessed 7 November 2007).

differ significantly from this estimate, estimating contamination by landmines and UXO at only about five per-cent of Vietnam's total area.

The contamination is so high that the average density is forty-six tons per square kilometer or 280 kilograms of UXO per capita.[429] Of all the provinces, Quang Tri Province, where about 60 percent of the Vietnam War occurred, is thought to be the most heavily saturated.[430]

The Vietnam War witnessed the first comprehensive use of scatterable mines.[431] This new mine warfare was so effective and brutal that scatterable mines were described by the "Failure to Protect Report" (based on a quote from an article in the journal *Foreign Affairs* in 1974) as "Both in design and in its practical development, the most indiscriminate antipersonnel weapon."[432]

According to Land Mine Monitor,[433] most of the UXO and de-mining in Vietnam has been conducted by BOMICEN and PAVN. There have also been some international and local NGOs such as Mines Advisory Group, Solidarity Service International, PeaceTrees Vietnam, Project RENEW, and Potsdam Kommunication and Australian Volunteers International (finished working in Vietnam at the end of 2005) engaged in de-mining and UXO clearance in 2005.

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429 Waldeck & Sensamaust.

430 To Walk The Earth In Safety: Fourth Edition.

431 McGrath, Landmines and Unexploded Ordnance, A Resource Book, 21.

432 *Failure to Protect, A case for the prohibition of cluster munitions*, (London: Landmine Action, August 2006), 5, http://www.mineaction.org/downloads/1/LMAUK_failure%20to%20protect.pdf (accessed 7 November 2007).

433 Landmine Monitor 2006 Report.

C. EUROPE AND CENTRAL ASIA (INCLUDING MIDDLE EAST)

According to GICHD,[434] countries affected to some degree by landmines and/or unexploded ordnance in Europe and Central Asia are: Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Croatia, Cyprus, Denmark, France (Djibouti), FYR Macedonia, Georgia, Greece, Kyrgyzstan, Moldova, Russia, Serbia & Montenegro, Slovenia, Tajikistan, Turkey, Ukraine, Yugoslavia, UK (Falklands), Uzbekistan (Abkhazia, Chechnya, Kosovo).

Out of these countries, Bosnia and Herzegovina, and Croatia are two of the world's ten most mine-affected states.[435]

There are more than 2 million mines and other unexploded ordnance left in the ground after the recent conflicts, especially in the Balkans. [436]

Iraq has also suffered—and still suffering—from ongoing conflicts.

Figure 9. Mine situation in the region. Map is courtesy of ICBL website.

Breakdowns of the contamination in some countries are tabulated below:

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434 GICHD Website, http://www.gichd.org/mine-action-and-erw-facts/faq/countries-affected/ (accessed 7 November 2007).

435 Canada's Support Mine Action in Europe and Central Asia, http://www.dev.mines.gc.ca/IV/mine_action_europe-en.asp (accessed 7 November 2007).

436 International Trust Fund (ITF) Website, http://www.itf-fund.si/dokumenti/dokument.asp?id=29 (accessed 7 November 2007).

Table 22. Breakdown of the contamination in the region according to ICBL, Goršeta and ITF

		Figures About Mine-Contaminated Countries in Europe/Central Asia									
		ALBANIA	BiH	CROATIA	MACEDONIA	SERBIA AND MONTENEGRO		Armenia	Azerbaijan	Georgia	Nagorno Karabakh (Azerbaijan)
						SERBIA	KOSOVO				
MINE-CONTAMINATED AREA	ICBL	3.146 sqkm	2146 sq km	1147 sq km	x	x	x	321.7 sq km	x	X	x
	Goršeta	15.2 sq km	2130.6 sqkm	1,700 sq km	21 sq km	39 sq km	45 sq km	x	x	X	x
	ITF	6,3 sq km	2130.6 sqkm	1,700 sq km	22 sq km	44.5 sq km	unknown	1,000 sq km	138 sq km (350-830 sq km)	18,4 sq km	72 sq km
PERCENTAGE OF THE COUNTRY CONTAMINATED WITH MINES	ICBL	x	4.14%	x	x	x	x	x	x	X	x
	Goršeta	0.02%	4.17%	3%	0.08%	0.05%	0.40%	x	x	X	x
	ITF	0.02%	4.20%	3%	0.08%	0.05%	unknown	3,4%	0,2% (0,4%-1%)	0,03%	1
NUMBER OF MINES	ICBL	Unknown	500,000	400,000 to 1.5 million	x	x	x	x		X	x
	Goršeta	Unknown	670,000 mines	500,000 mines	2,000 mines	71,000 mines	25,000 mines	x	x	X	x
	ITF	Unknown	670,000 mines	500,000 mines	unknown	710,000 mines	unknown	50,000-80,000	50,000-100,000	unknown	15,000 and more
NUMBER OF UXO	ICBL	Unknown	X	310,000	x	x	x	x	x	X	x
	Goršeta	Unknown	650,000 UXO	400,000 UXO	2,000 mines	unknown	unknown	x	x	X	x
	ITF	Unknown	650,000 UXO	400,000 UXO	unknown	unknown	unknown	x	x	x	x

1. Bosnia and Herzegovina

After Marshal Tito's death in 1980, unrest started among the citizens of Yugoslavia, culminating in the collapse of the country and its division into five different countries: Slovenia, Croatia, Bosnia and Herzegovina, The Federal Republic of Yugoslavia (Serbia and Montenegro), and the Republic of Macedonia.[437] The mine and UXO problems have come mainly as a result of the fighting among these five states between 1990 and 1995.

Bosnia and Herzegovina is one of the world's ten most mine-affected states and the most mine-affected country in Europe. An estimated 1.3 million people,[438] roughly one third of the population, live in 1,366[439] (4.2 percent of the territory[440]) mine-impacted communities.[441] The Bosnia and Herzegovina Mine Action Center (BHMAC) states[442] that 154 of them are high-impact areas, 696 of them medium-impact areas, and 516 of them low-impact areas.

The U.S. believes[443] that Bosnia and Herzegovina has 670,000 landmines and 650,000 UXO, while Landmine Monitor[444] estimates the total number of mines around 500,000, although both base their estimates on the data from BHMAC. This variation shows the difficulty of deciding on the extent of the actual contamination, since records of mine incidents involving civilians show many incidents where there are no recorded minefields. These are either due to UXO, or else indicate unrecorded minefields. This

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437 Landmines UK Website, http://www.landmines.org.uk/271.php (accessed 7 November 2007).

438 ITF Annual Report 2004, 49, Website, http://www.itf-fund.si/docdir/ITF%20LP%202004%20OK.pdf , (accessed 30 November 2007).

439 Bosnia and Herzegovina Landmine Victims Assistance Strategy, http://www.bhmac.org/danes/slike/down/BH%20LANDMINE%20VICTIMS%20STRATEGY.pdf (accessed 7 November 2007).

440 International Trust Fund (ITF) Website, http://www.itf-fund.si/dokumenti/dokument.asp?id=99 (accessed 7 November 2007).

441 Katie Fitzgerald, "Profile of Bosnia and Herzegovina," *Journal of Mine Action*, Summer 2007, Issue 11.1, http://maic.jmu.edu/journal/11.1/profiles/bih/bih.htm (accessed 7 November 2007).

442 Bosnia Herzegovina Mine Action Center Website, http://www.bhmac.org/eng/stream.php?kat=18 (accessed 7 November 2007).

443 To Walk to the Earth in Safety, 6th Edition, 28.

444 Landmine Monitor 2006 Report.

proves current records and databases are still incomplete; mines were often laid in a hurry or records were lost. They were also used by non-military units and other groups not following military procedures.

De-mining efforts in the country began right after the Dayton Peace Agreement, which mandated that the armed forces of the three factions begin mine lifting immediately following the ceasefire in late 1995.[445]

According to the BHMAC 2006 Mine Action Report,[446] there are thirty-five accredited organizations in Bosnia and Herzegovina, of which five are governmental organizations (Armed Forces, Civil Protections and MDDC), twelve non-governmental organizations (eight national and four foreign) and nineteen commercial organizations (thirteen national and six foreign).

The Landmine Monitor 2006 report[447] lists de-mining organizations in 2005 as:

- Armed Forces (Armed Forces Republika Srpska (RS) Armed Forces FBiH (Bosnian) and Armed Forces FBiH (Croatian)) and Civil Protection Agencies
- The NGOs NPA, INTERSOS, Canadian International De-mining Corps (CIDC), STOP Mines, BH De-mining, Pro Vita, Association for Elimination of Mines (UEM), UG Demira and UG ZOM, APM, Brčko Civil Protection, FBiH Civil Protection, RS Civil Protection
- Commercial companies.

James Mason University Mine Action Information Center (MAIC)[448] gives the names of commercial firms as follows:

- A.B.C. Appalti Bonifiche Costruzioni s.a.s
- ArmorGroup Mine Action, CEIA SpA
- CEIA USA
- DANMINAR A/S

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445 *The Role of the Military in Mine Action,* GICHD, Geneva, June 2003, 36.

446 BHMAC 2006 Mine Action Report, http://www.bhmac.org/en/stream.daenet?kat=60 (accessed 7 November 2007).

447 Landmine Monitor 2006 Report.

448 Mine Action Information Center (MAIC) Website, http://www.maic.jmu.edu/gmar/search_results.asp?OType=14&Activity=50&OCountry=38&Keyword=&btnSubmit=Perform+Search&=0&showall=0 (accessed 7 November 2007).

- DOK-ING d.o.o.
- E&I International Ltd.
- European Land Solutions Limited
- Humanitaeres Minenraeumen/Humanitarian De-mining
- Consultant, MACC International Ltd
- Mechem Consultants
- Mine Action & Clearance Centre Malaysia Sdn Bhd
- MPWD Limited
- PLANIT EOD LimitedQualissol Consultants
- RONCO Consulting Corporation (U.S. government contracted for $15 million to show that quick results were possible and to demonstrate the private enterprise principle[449])
- Special Services Group International Inc
- Trademill De-mining
- UXB International, Inc.
- WAY INDUSTRY, a.s.

2. Croatia

Due to the conflicts between Croatia and the Yugoslav Army after Croatia's declaration of independence in 1991, and Croatia's involvement in the war in Bosnia and Herzegovina later in the decade, significant landmine contamination took place in the region.[450] All warring parties used landmines excessively during the conflicts, mainly to protect defensive positions on the frequently changing front lines.[451] Extensive reliance on the use of antipersonnel mines also led to significant contamination.[452]

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449 UNHCR The U.N. Refugee Agency Website, *Landmines: The urgent need for a Sustainable Policy*, 3 June 2007.

450 *Explosive remnants of war and mines other than anti-personnel mines, Global survey 2003 –2004*, (London: Landmine Action, March 2005), 50.

451 Landmine Monitor 2006 Report.

452 *Explosive remnants of war and mines other than anti-personnel mines*, 50.

While the Landmine Monitor 2000 Report[453] estimates that the number of mines deployed ranged from 400,000 to 1.5 million, The U.S. "Hidden Killer" 2001 Report estimates the figure as 1-1.2 million.

The 2006 U.S. Report "To Walk the Earth in Safety"[454] gives the extent of the contamination based on the data gathered from The Croatian Mine Action Center (CROMAC), estimating that minefields in the country covered almost 1,174 square kilometers (3 percent of the total surface area of Croatia[455]) in fourteen of Croatia's twenty-one counties. Landmine Monitor states that probably more than one million people live in 121 mine-affected cities.[456]

While mine clearance had been carried out by the Croatian Army, Special Police and Civilian Defense in the first post-war period, later on the Croatian Government established the MUNGOS de-mining agency. After the Croatian Government changed the national law to allow for more international participation in February 1998, several organizations participated in the efforts.[457]

Landmine Monitor[458] states that de-mining and survey operations are carried out by twenty-seven commercial companies and one NGO—Norwegian People's Aid (NPA)—for a total of 600 de-miners.

James Mason University Mine Action Information Center (MAIC)[459] gives the names of commercial firms as follows:

- A.B.C. Appalti Bonifiche Costruzioni s.a.s
- ArmorGroup Mine Action
- CEIA SpA

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453 Landmine Monitor 2000 Report.

454 To Walk to the Earth in Safety, 6th Edition, 28.

455 *Explosive remnants of war and mines other than anti-personnel mines,* 50.

456 Landmine Monitor 2006 Report.

457 James Mason University, Mine Action Information Center, *Landmines in Eastern Europe & the Caucasus*, Issue 4.1, 2000, http://maic.jmu.edu/journal/4.1/croatia.htm (accessed 7 November 2007).

458Landmine Monitor 2006 Report.

459 Mine Action Information Center (MAIC) Website, http://www.maic.jmu.edu/gmar/search_results.asp?OType=14&Activity=50&OCountry=42&Keyword=&btnSubmit=Perform+Search&=0&showall=0 (accessed 7 November 2007).

- CEIA USA
- CGTVA
- DOK-ING d.o.o.
- Maavarim - Civil Engineering LTD.
- MACC International Ltd
- Mechem Consultants
- Med-Eng Systems Inc.
- MINELINK(PVT)LTD
- MKA*DEMING Ltd.
- MPWD Limited
- Norwegian De-mining Consortium (NoDeCo)
- PLANIT EOD Limited
- Qualissol Consultants
- REASeuro WORLDWIDE Ltd
- RONCO Consulting Corporation
- RU-RU d.o.o.
- RU-RU-DOK-ING Ltd Sudan
- Scandinavian De-mining Group
- Tactical Training Institute
- UNIEXPL LTD
- WAY INDUSTRY, a.s.
- Yard De-mining International

3. Iraq

Iraq, due to several wars and internal conflicts, has suffered greatly from landmines for quite a long time. These conflicts include World War II, two decades of internal conflict,[460] the 1980-1988 war with Iran, the 1991 first Gulf War after Iraq's invasion of Kuwait, and the present conflict that began with the invasion of U.S.-led Coalition forces in March 2003.[461]

460 *Explosive remnants of war and mines other than anti-personnel mines*, 86.

461 Landmine Monitor 2006 Report.

It was not only the Iraqi forces that used landmines in Iraq. While the Iraqi army used landmines extensively against the Kurds as a means to prevent Kurdish military action during the internal conflicts and later on during the Iran- Iraq war,[462] U.S. forces also used 117,634 landmines during the Gulf War—27,967 of which were antipersonnel mines[463]—despite the U.S. policy[464] that calls for the military to stop using mines.

The focus of landmine laying in Iraq has been in the northern part of the country along the 1,400 kilometer[465] Iran-Iraq border, specifically in the districts of Penjwin, Sharbazher, and Qaladiza.[466] Most of those mines were emplaced in barrier and tactical minefields. Additional minefields were laid on the border with Saudi Arabia before the 2003 conflict. But the actual number of mines planted in Iraq has never been known accurately.

According to U.N. data base, the Impact Survey conducted in Iraq by Vietnam Veterans of America Foundation (VVAF)[467] shows that contaminated areas exist in only thirteen governorates.[468] While the U.N. claims that this contamination spans over 4,270 suspected hazardous areas and more than 1,700 square kilometers, affecting 2,117 communities, Land Mine Monitor claims that contamination covers more than 3,548 suspected hazardous areas containing mines and/or UXO, and affecting 1,579 communities. [469]

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462 *Reconstructing Iraq: A Guide to the Issues A joint publication of the Open Society Institute and the United Nations Foundation*, 50, http://www.soros.org/initiatives/washington/articles_publications/publications/reconstructingiraq_20030530/reconstructing_iraq.pdf (accessed 7 November 2007).

463 Aisha El-Awady, *Landmines in Iraq: Present Problem, Future Disaster, Islam online*, 1 March 2003, http://www.islamonline.net/servlet/Satellite?c=Article_C&cid=1158658299378&name=Zone-English-HealthScience%2FHSELayout (accessed 7 November 2007).

464 (Current U.S. policy, as announced in May 1998, is that by the year 2003 the United States will cease to use antipersonnel mines, except for those contained in mixed munitions, everywhere in the world, except for Korea).

465 Landmine Monitor 2006 Report.

466 Human Rights Watch Website, http://hrw.org/campaigns/iraq/iraqmines1212.htm (accessed 7 November 2007).

467 Landmine Monitor 2006 Report.

468 U.N. Mine Action Website, http://www.mineaction.org/country.asp?c=14 (accessed 7 November 2007).

469 Landmine Monitor 2006 Report.

Extensive UXO contamination resulted from Coalition air strikes and ground engagements in 2003. The result of the contamination has been terrible. In order to understand the extent of the problem, it is necessary to look at the manufacture of prostheses for mine survivors. Iraqi centers supported by the ICRC manufactured 1,168 prostheses in 2001.[470]

According to Land Mine Monitor, most of Northern Iraq's de-mining services were contracted and coordinated by General Directorate for Mine Action (GDMA). GDMA performed a management role, coordinating and tasking mine action, including issuing contracts for clearance to commercial companies. There are several commercial companies and NGOs conducting de-mining in the country. The active de-mining organizations are:

- Mines Advisory Group
- Norwegian People's Aid
- German NGO HELP (in Baghdad)
- Danish De-mining Group
- INTERSOS
- MineTech International
- IMCO (Iraq Mine UXO Clearance Organization—the first Iraqi national NGO with financial support from the U.S. Department of State and training from RONCO)
- Al Doha (An Iraqi commercial company)
- RONCO (under a contract with the Multi-National Security Transition Command-Iraq (MNSTC-I))

Also, the destruction of abandoned ordnance and munitions stockpiles continued under the three-year-old Coalition Munitions Clearance Program, managed by the U.S. Army Corps of Engineers and employing multiple contractors including ArmorGroup.[471]

[470] El-Awady.

[471] Landmine Monitor 2006 Report.

D. AFRICA

Table 23. African Countries Affected by Landmines

Angola	Ethiopia	Namibia	Uganda
Burundi	Guinea-Bissau	Rwanda	Western Sahara
Chad	Liberia	Senegal	Zimbabwe
Djibouti	Libya	Somalia	
Egypt	Mauritania	Sudan	
Eritrea	Mozambique	Tunisia	

1. Background

Africa is the most highly mine-contaminated continent in the world. African countries have been suffering from an epidemic of landmines and Unexploded Ordnance (UXO). The estimates show that there are at least forty million landmines laid in Africa. Some 140 million people in Africa live under constant threat of landmines.[472]

Some of these countries (Angola, Chad, Eritrea, Liberia, Mozambique, Rwanda, Somalia, Sudan and Uganda) are more contaminated than the others. In addition, Libya, Egypt and Tunisia have very old minefields from the Second World War.

[472] African Red Cross & Red Crescent Health Initiative 2010 Website, http://www.ifrc.org/WHAT/health/archi/fact/fmines.htm (accessed 7 November 2007).

Table 24. African Mine Affected Country Profiles[473]

Country	**No. of Mines**	**Country**	**No. of Mines**
Angola	15,000,000	Mozambique	3,000,000
Burundi	Unknown	Namibia	50,000
Chad	70,000	Rwanda	250,000
Dem Rep Congo	Unknown	Senegal	Unknown
Djibouti	Unknown	Sierra Leone	Unknown
Egypt	23,000,000	Somalia	1,000,000
Eritrea	1,000,000	Sudan	1,000,000
Ethiopia	5,000,000	Tunisia	Unknown
Guinea-Bissau	Unknown	Uganda	Unknown
Liberia	18,250	Western Sahara	Unknown
Libya	Unknown	Zimbabwe	Unknown
Mauritania	Unknown		

*data taken from U.N. database

473 Data taken from U.N. database and *Landmine Monitor* Reports.

Figure 10. Mine situation in the region. Map is courtesy of ICBL website.

2. Angola

Angola is one of the most heavily mined countries in the world**.** ICBL states—based on U.N. estimates—that the country has between ten and fifteen million landmines scattered across eight provinces and covering roughly 50 percent of the country.[474] But the U.S. "Hidden Killers" Report of 2001 modifies the estimates down to 200,000 to 6,000,000.[475] Also U.N. mine-action sources states that there is no exact figure on the number of mines in any of the Angolan provinces.[476] While U.N. Mine Action data[477]

[474] *Landmine Monitor* 1999 Report, http://www.icbl.org/lm/1999/angola (accessed 7 November 2007).

[475] Hidden Killers 2001 The World's Landmine Problem, http://www.state.gov/t/pm/rls/rpt/hk/2001/6961.htm (accessed 7 November 2007).

[476] U.N. Mine action Website, http://www.mineaction.org/country.asp?c=2 (accessed 7 November 2007).

[477] Ibid.

claims that landmines affect all eighteen provinces of Angola to various degrees, Hidden Killers 1998 states that about 50 percent of the country (in a band from the northwest border with the Congo to the southeast border with Namibia[478]) is heavily affected, with minefields scattered through six to eight provinces.[479] Out of these provinces, Bengula province is the most severely mined (1,400,000 mines) province.[480]

Angola has one of the two highest amputee rates in the world, with one amputee per 334 inhabitants (more than 70,000 victims, mostly women and children).[481] But ICRC gives a more conservative figure of 15,000.[482]

The variety of landmine types found in the country differs from sixty[483] to one hundred.[484] Nearly sixty different types of landmines have been found during clearance operations.

According to Hidden Killers 1988 Report,[485] mine laying had been conducted mostly by National Union for the Liberation of Angola (UNITA) and the Angolan Armed Forces (FAA).

The first surveys were conducted by Norwegian People's Aid (NPA) after it was awarded the contract by the U.N. to conduct a survey of the landmine problem. NPA completed an initial survey by the end of 1998.

Since then, several international organizations and commercial firms have conducted de-mining-related activities. According to ICBL's 2006 report,[486] at least ten operators were involved in mine clearance in Angola in 2005. These organizations were the Angolan Armed Forces (AAF), INAD, TeleServise (an Angolan commercial

478 To Walk The Earth In Safety: Fourth Edition.

479 Hidden Killers-1998.

480 Roberts & Williams, *After the Guns Fall Silent: The enduring Legacy of Landmines*, 102.

481 African Red Cross & Red Crescent Health Initiative 2010 Website.

482 Arms Project (Human Rights Watch), *Landmines, A Deadly Legacy, Physicians for Human Rights* (U.S.), 1993, 154.

483 African Red Cross & Red Crescent Health Initiative 2010 Website.

484 Arms Project (Human Rights Watch), *Landmines, A Deadly Legacy*, 150.

485 Hidden Killers 1998.

486 Landmine Monitor 2006 Report.

company), and seven international NGOs: Norwegian People's Aid, HALO Trust, DanChurchAid, Mines Advisory Group, INTERSOS, Menschen gegen Minen, and Santa Barbara Foundation.

3. Burundi

The U.N. Mine Action Website quotes the Burundian Minister of Defence, Col. Alfred Nkurunziza, as saying that the first mine accidents reported in Burundi occurred in 1993.[487] The problem worsened due to the unstable security conditions in Burundi as well as in neighboring Rwanda and Zaire, and to the refugee problems they created. When they fled their country in 1994, the former Forces Armées Rwandaises (FAR) allegedly carried with them 40,000 anti-personnel mines and 2,000 anti-tank mines.

There has never been a complete mine-effect survey in the country. According to ICBL's 2006 report,[488] a 75-percent-completed national community survey of mine contamination revealed that 15 percent of communities surveyed were affected by mines and between 8 and 12 percent of the population continues to live in high-risk areas, despite explosive ordnance disposal (EOD) tasks carried out in the course of the survey. U.N. Mine Action[489] states that the surveys conducted confirmed the existence of some 192 mine- and ERW-hazardous areas.

Reports on landmine-related deaths between 1993 and 2000 vary widely, from 80 to 791 deaths.[490] Extensive contamination is believed to exist primarily in the southern provinces and along the Tanzanian border. It is alleged that both the Burundian government and rebel groups have used mines (mainly in extensive barrier minefields[491]) along the Tanzanian border (particularly in the south of Makamba province, and in Rutana and Ruyigi provinces[492]), endangering the lives of civilians fleeing into Tanzania and those returning to Burundi. The government denies any use of landmines.

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487 U.N. Mine Action Website, http://mineaction.org/docs/266_.asp#1 (accessed 7 November 2007).

488 Landmine Monitor 2006 Report.

489 U.N. Mine Action Website, http://www.mineaction.org/country.asp?c=5 (accessed 7 November 2007).

490 Watch List On Children and Armed Conflict May 2002 Burundi Report, http://www.watchlist.org/reports/pdf/burundi.report.pdf (accessed 7 November 2007).

491 Landmine Monitor 2006 Report.

492 Ibid.

Currently there are two international NGOs, the Swiss Foundation for Mine Action (FSD) and Danish Church Aid (DCA) working in Gitega Province and Makamba Province, respectively. DCA recruits and trains two to three teams of ten manual de-miners; FSD will deploy two teams of manual de-miners.[493]

4. Chad

Landmine contamination in Chad results from the Libyan invasion in 1973, heavy mining during Libya's occupation of the Aouzou Strip from 1984 to 1987 and decades of internal conflicts.[494] Most heavily mined areas are in the Borkou-Ennedi-Tibesti region in the north and the Biltine and Quaddai regions in the east.

The surveys conducted throughout Chad between December 1999 and June 2001 revealed that most of the mined areas are in the Borkou-Ennedi-Tibesti (BET) region in the north and in the Biltine and Ouaddai regions in the east—with lesser mined areas in the west and the south—totalling 249 mine-affected communities and covering up to 1,081 square kilometers.[495] Their contamination directly interferes with the livelihoods and safety of at least 284,435 persons.[496]

Minefields in Chad generally contain a mix of anti-personnel and anti-tank mines and some booby-traps. Surveys and clearance operations revealed that twenty-nine types of mines of various origins have been laid in Chad.[497] According to the National Mine Action Center of Chad, from 2002 to the end of 2005 a total of 1,658,659 square meters had been cleared of mines, destroying 13,993 antipersonnel mines, 5,775 antivehicle

493 UNMAS 2004 Annual Report, 24, http://www.mineaction.org/downloads/UNMAS%20AR%202004.pdf (accessed 7 November 2007).

494 Megan Wertz, "Chad Country Profile," *Journal of Mine Action*, Issue 10.1, August 2006, http://maic.jmu.edu/Journal/10.1/profiles/chad/chad.htm (accessed 7 November 2007).

495 U.N. Mine Action Website, http://www.mineaction.org/country.asp?c=7 (accessed 7 November 2007).

496 Veterans of America Foundation Website, http://www.veteransforamerica.org/ModuleID/123 (accessed 7 November 2007).

497 U.N. Mine Action Website, http://www.mineaction.org/country.asp?c=7 (accessed 7 November 2007).

mines, 156,618 items of UXO and 106 bombs.[498] However, it was estimated in 1995 that there were still 70,000 mines to be cleared.[499]

There is only one international mine-clearance organization (Mines Advisory Group (MAG) in Chad. MAG has engaged with two projects. France also assisted the Chadian army in some de-mining tasks during 2005.[500]

5. Democratic Republic of the Congo

The problem of landmine contamination in the Democratic Republic of the Congo is the result of the six-year civil war.[501] The first landmine victim to be reported in the country was in 1995 at Goma.[502]

Wertz quotes from the (ICBL) Landmine Monitor 2006 Report[503] that the contamination "extends diagonally from the northwest corner of Equateur province across the center of the country through Kasai to the southeast in Katanga province and then north along Lake Tanganyika up to Ituri district along the border with Uganda."[504]

To determine the actual extent of the contamination in the DRC has been very difficult because of UXOs and ERWs scattered throughout the country. As a result, no nationwide landmine-impact survey has been conducted. The only available information about the landmine problem was collected by the U.N.'s Mine Action Coordination Centre (MACC)[505] and non-governmental organizations (NGOs).[506]

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498 Landmine Monitor Website, http://www.icbl.org/lm/2006/chad.html#Heading33 (accessed 7 November 2007).

499 African Red Cross & Red Crescent Health Initiative 2010 Website.

500 Landmine Monitor Website, http://www.icbl.org/lm/2006/chad.html#Heading33 (accessed 7 November 2007).

501 *Africa Research Bulletin: Political, Social and Cultural Series* Volume 43 Issue 12 16910A-16911C, January 2007, http://www.blackwell-synergy.com/action/showPdf?submitPDF=Full+Text+PDF+%2892+KB%29&doi=10.1111%2Fj.1467-825X.2007.00739.x (accessed 7 November 2007).

502 Ibid.

503 Landmine Monitor 2006 Report.

504 Megan Wertz, "Democratic Republic of Congo Profile," *Journal of Mine Action*, Issue 10.1, August 2006, http://maic.jmu.edu/Journal/10.1/profiles/drc/DRcongo.htm (accessed 7 November 2007).

505 Raymond W. Copson, *CRS Report for Congress, Democratic Republic of the Congo: Peace Process and Background* August 14, 2001, http://digital.library.unt.edu/govdocs/crs//data/2001/upl-meta-crs-6838/RL31080_2001Aug14.pdf?PHPSESSID=2899d8dc3ef3b15f8d83e29dd3f1e587 (accessed 7 November 2007).

It has been reported that there are 726 suspected mined areas in Democratic Republic of Congo, most of which have not yet been cleared. The number of the victims up to today is as high as 1,864 (815 killed and 1,049 injured).

Clearance of the fields has been conducted by Mines Advisory Group (MAG), DanChurchAid, Handicap International, and Mechem. The Swiss Foundation for Mine Action suspended its operations in June 2005.[507]

6. Egypt

As stated at the First Review Conference of the Mine Ban Treaty, and reported by media following the Landmines Conference held in Cairo on 27 and 28 December 2005, Egypt has the highest number of mines in the world.[508] Official estimates[509] state that there are about 23,000,000 landmines, laid in the battle of El Alamain and the Arab-Israeli wars. Egyptian officials estimate there are 17,000,000 landmines and UXO in the El-Alamein area alone, 25 percent of which are landmines.[510]

The mine problem in Egypt most significantly affects the regions in the Western Desert region, the Sinai Peninsula, and areas in the vicinity of the Suez Canal and Red Sea coast to the East.[511]

Although the mines waiting to be removed are very old, they still claim the lives of thirty persons every year. [512]

Despite the significant extent of contamination, there is no record of any kind of survey or clearance activity by any organization. Besides, the U.N. Mine Action Service

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506 U.N. Mine Action Website, http://www.mineaction.org/country.asp?c=65 (accessed 7 November 2007).

507 Landmine Monitor 2006 Report.

508 Landmine Monitor Website. Retrieved 7 November 2007 from http://www.icbl.org/lm/2006/egypt.html#Heading36.

509 UNICEF Website, http://www.unicef.org/sowc96pk/hidekill.htm (accessed 7 November 2007).

510 Hans Günter Brauch, *Security and Environment in the Mediterranean: Conceptualising Security and Environmental Conflicts*, (New York: Springer, 2003), 514.

511 UNMAS Mine Action Assessment Mission Report the Arab Republic of Egypt, 09-23 February 2000, 3, http://www.mineaction.org/downloads/Egypt_Assessm_Report.PDF (accessed 7 November 2007).

512 Cherine Badawi, *Egypt*, (Footprint Travel Guides, 2004), 39.

(UNMAS) assessment mission in 2000 reported that marking of minefields and mine-suspected areas is very limited in the Western Desert and eastern region.[513]

7. Eritrea

The Eritrean landmine problem began during World War II when fights between British and Italian units took place on Eritrean soil. Besides, its long struggle for independence (1962–1991) and border war with Ethiopia (1998–2000) worsened the problem.[514] Landmines were used extensively during the independence war in particular to defend strongholds around cities and populated areas, military camps, and roadways. Although almost the entire mine-suspected areas are in the northern part of the country, large areas of the country have not yet been surveyed for landmines.[515]

According to the Landmine Impact Survey (LIS), there are 914 suspected mined areas and 113 UXO-contaminated sites.[516] Though the problem is nationwide, the Shilalo area (Gash Barka region in the southwest) is the most mine-affected area.[517] The Hidden Killers Report of 1998[518] estimated that there were 500,000 to 1 million antipersonnel mines (nineteen different types[519]) in Eritrea based on the information provided by the American Embassy in Asmara. However, in the 2001 report, the figures were revised to 1.5 to 2 million mines based on the estimates of the National De-mining Center in Asmara.[520]

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513 Landmine Monitor Website. Retrieved 7 November 2007 from http://www.icbl.org/lm/2006/egypt.html#fnB31.

514 Megan Wertz, "Eritrea Country Profile," *Journal of Mine Action*, Issue 10.1, August 2006, http://maic.jmu.edu/Journal/10.1/profiles/eritrea/eritrea.htm (accessed 7 November 2007).

515 Hidden Killers-1998.

516 Landmine Monitor Website, http://www.icbl.org/lm/2006/eritrea.html#Heading44 (accessed 7 November 2007).

517 Wertz, "Eritrea Country Profile."

518 Hidden Killers 1998.

519 African Red Cross & Red Crescent Health Initiative 2010 Website.

520 Hidden Killers-2001: The World's Landmine Problem.

De-mining operations in Eritrea were carried out in 2005-2006 by Eritrean teams under the supervision of the U.S. commercial company RONCO, the civilian contractor Mechem (from South Africa), and UNMEE de-mining contingents.[521]

8. Ethiopia

Ethiopia's landmine problems date back to the seventy-year history of internal and international armed conflicts, from the Italian invasion of 1935 to the Ethiopian-Eritrean War (1998–2000).[522]

Ethiopia is one of the world's ten most heavily mined countries[523] with 1,500,000 to 2,000,000 landmines (particularly in Tigray), according to the Government of Ethiopia's Mine Action Office estimates.[524] The Ethiopian government predicts that it will take decades to clear the minefields.[525] It is also estimated that the amount of landmines has increased (Ethiopian forces laid 150,000–200,000 landmines and Eritrea laid 240,000 mines over the disputed border areas) due to the recent Ethiopian-Eritrean conflict.[526]

In 2004 Norwegian People's Aid completed a countrywide Landmine Impact Survey. The LIS determined that 1.9 million people were at risk and identified 1,492 landmine-afflicted communities.[527] Some sources claim that there are five to ten mine casualties each week.[528] However, currently there is no scientific or dependable data collection mechanism.

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521 Landmine Monitor Website, http://www.icbl.org/lm/2006/eritrea.html#Heading44 (accessed 7 November 2007).

522 Daniele Ressler, "Ethiopia Country Profile," *Journal of Mine Action*, Issue 10.1, August 2006 (Updated July 16 2007), http://maic.jmu.edu/Journal/10.1/profiles/ethiopia/ethiopia.htm (accessed 7 November 2007).

523 Ibid.

524 To Walk The Earth In Safety: Fourth Edition.

525 Ressler, "Ethiopia Country Profile."

526 Ibid.

527 U.N. Mine Action Website, http://www.mineaction.org/country.asp?c=11 (accessed 7 November 2007).

528 African Red Cross & Red Crescent Health Initiative 2010 Website.

There were two de-mining bodies in Ethiopia at the end of 2005: EMAO and, since October 2005, NPA.[529]

9. Mozambique

Warring almost without stopping from the 1960s,[530] when the nationalist struggle erupted against the colonial Portuguese, until the end of the civil war between Front for the Liberation of Mozambique (Frelimo) and the Mozambican National Resistance (Renamo) in October 1992, Mozambique suffered greatly from minelaying.[531] While the Portuguese colonial rulers laid mine belts along the Tanzanian border, insurgents laid their mines sporadically on roads and paths.[532]

"Deadly Legacy"[533] states that although the United Nations (U.N.)'s initial study in 1992 estimated the number of landmines buried in Mozambique at around two million, the actual amount was believed to be much less. Another partial national 'level one' survey conducted by HALO Trust in 1995 also revised the former estimates to one million.[534] Although most of the organizations accept that the number of landmines is less than two million, estimates still differ in a wide range from 250,000[535] to one million.[536] It was reported after the clearance operations that there were fifty different types of landmines found in the country's soil.[537] The uncertainty is due to two obvious factors. The first factor is the inadequacy of records regarding the numbers of landmines.

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529 Landmine Monitor Website, http://www.icbl.org/lm/2006/ethiopia.html#Heading45 (accessed 7 November 2007).

530 Arms Project (Human Rights Watch), *Landmines, A Deadly Legacy*, 204.

531 Gareth Elliot & Geoff Harris, *A cost–benefit analysis of landmine clearance in Mozambique, Development Southern Africa* Vol. 18, No 5, December 2001, 625.

532 Landmine Monitor Website, http://www.icbl.org/lm/2006/mozambique.html#Heading39 (accessed 7 November 2007).

533 Arms Project (Human Rights Watch), *Landmines, A Deadly Legacy*, 204.

534 Elliot & Harris, 625.

535 Irish Department of Foreign Affairs Website, http://www.irishaid.gov.ie/country_article.asp?article=774 (accessed 7 November 2007).

536 Elliot & Harris, A cost–benefit analysis of landmine clearance in Mozambique, 625.

537 African Red Cross & Red Crescent Health Initiative 2010 Website.

The knowledge about the exact locations and the amounts unfortunately stayed with whoever laid the mines.[538] Secondly, mines were not laid according to traditional military doctrines.[539]

The national De-mining Institute's estimates at the end of 2005 indicated that there were 353 suspected areas affecting approximately 578,000 people in 174 communities and covering an area of 149 square kilometers.[540] Although landmines are scattered throughout the country, the most heavily mined areas are in the north, along the border with Zimbabwe (Zambezia in Tete Province, and in Maputo and Inhambane Provinces).[541] The Mozambique Landmine Impact Survey, certified by the United Nations in September 2001, estimated that more than ten percent of the population faces direct threats to their way of life.[542] Handicap International estimates forty-five to fifty casualties per month resulting from landmines.[543]

Mine-clearance activities are carried out by six organizations: HALO Trust in the four Northern provinces, Norwegian People's Aid in the center, the U.N.-sponsored Accelerated De-mining Program and Handicap International in the south, and the Mozambique Armed Defense Force de-mining units and U.S.-funded quick reaction de-mining force established in Mozambique and supervised by RONCO Consulting Corporation.[544]

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538 Roberts & Williams, *After the Guns Fall Silent: The enduring Legacy of Landmines*, 212.

539 Elliot & Harris, A cost–benefit analysis of landmine clearance in Mozambique, 625.

540 Landmine Monitor Website, http://www.icbl.org/lm/2006/mozambique.html#Heading39 (accessed 7 November 2007).

541 To Walk The Earth In Safety: Fourth Edition.

542 U.N. Mine Action Website, http://www.mineaction.org/country.asp?c=18 (accessed 7 November 2007).

543 African Red Cross & Red Crescent Health Initiative 2010 Website.

544 Landmine Monitor Website, http://www.icbl.org/lm/2006/mozambique.html#Heading39 (accessed 7 November 2007).

10. Somalia

Landmine contamination in Somalia stems from several wars, beginning with the 1964 and 1977 Ogaden Wars.[545] The majority of the mines in Northern Somalia were laid by troops loyal to the military government of Said Barre[546] and to a lesser extent by the Somali National Movement.[547]

Although landmines were reportedly already used during the Italian and British colonial period, they were first laid extensively during the inter-state wars between Somalia and Ethiopia in 1964 and 1977-78.[548] SWART claims it was in 1966 that the first significant mine laying began during the conflicts, with Ethiopia's emplacing mines primarily along the border (mostly as barrier AT mine fields), and then again between 1977 and 1978.[549] The Somalia Mine Action Center has confirmed the presence of at least twenty-eight mined roads and sixty-three known and seventeen suspected minefields.[550]

Although some resources such as the "Hidden Killer" report claim that the total number of landmines in the country is as high as 1,000,000, 60 percent of which are antipersonnel mines,[551] some sources think just the opposite. ICBL's Landmine Monitor 2006 Report states that, according to a feasibility study conducted for UNICEF in 2000, numerical estimates of mine contamination are not as high as previously thought.[552]

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545 Megan Wertz, "Somalia Country Profile," *Journal of Mine Action*, Issue 10.1, August 2006, http://maic.jmu.edu/JOURNAL/10.1/profiles/somalia/somalia.htm (accessed 7 November 2007).

546 Roberts & Williams, *After the Guns Fall Silent: The enduring Legacy of Landmines*, 271.

547 Arms Project (Human Rights Watch), *Landmines, A Deadly Legacy*, 223.

548 Geneva Call, "*Landmines in Somalia*," report of the Geneva Call follow up Mission to Puntland, Hiran and Bakol Regions Report, 15-27 September 2004, 7, http://www.genevacall.org/resources/testi-publications/gc-15sep04-somalia.pdf (accessed 7 November 2007).

549 Jab Swart, "Mine Action Program for Somalia," *Journal of Mine Action*, Issue 6.1, April 2002, http://www.maic.jmu.edu/Journal/6.1/focus/swart/swart.htm (accessed 7 November 2007).

550 To Walk The Earth In Safety: The United States Commitment To Humanitarian De-mining, Fourth Edition.

551 Hidden Killers 1998.

552 Landmine Monitor 2006 Report.

A major problem is that, although minefield locations are known locally,[553] the location and extent of mined areas are largely unknown, and therefore the magnitude of the problem to be contained has not been accurately determined.[554]

There are limited numbers of organizations conducting mine-related activities. A police team trained by Mechem in 2004 and by the Swedish Rescue Services Agency in early 2005 is responsible for Explosive Ordnance Disposal (EOD) activities. In 2005, UNDP trained and deployed an EOD team in Jowhar, Middle Shabbelle region, but by mid-2006 this team was no longer functional. HALO Trust stopped working in Puntland in 2005-2006, "due to the changing security and political situation over the disputed territory of Sool and Sanaag.[555]

11. Sudan

Sudan is considered by UNICEF to be one of the top ten landmine-affected countries.[556] The problem stems from internal conflicts that have lasted more than twenty years. The structure of the contamination is formed mostly by the Sudan People's Liberation Army's antivehicle mines laying on roads to limit movement of Governmental forces and to control routes to the towns they controlled, while the Government lays antipersonnel landmines to protect its garrison towns and to prohibit movement of insurgent troops.[557] Other mining campaigns were conducted in the desert of northern Sudan during World War II, in the conflict along the northwestern border with Libya and the conflict with Eritrea along the eastern border.[558]

According to Sudan Landmine Information and Response Initiative (SLIRI), the conflict caused more than two million people's death and the dislocation of over 4 million people.[559]

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553 African Red Cross & Red Crescent Health Initiative 2010 Website.

554 Jab Swart, Mine Action Program for Somalia.

555 Landmine Monitor 2006 Report.

556 Leah Hoy, "Sudan Country Profile," *Journal of Mine Action*, Issue 10.1, August 2006, http://maic.jmu.edu/Journal/10.1/profiles/sudan/sudan.htm (accessed 7 November 2007).

557 Landmine Monitor 2006 Report.

558 Hidden Killers: The Global Landmine Crisis.

559 Sudan Landmine Information and Response Initiative (SLIRI) Website, http://www.landmineaction.org/sliri/index.htm (accessed 7 November 2007).

Although the full extent of the problem is largely unknown, estimates on the number of the mines laid range from 500,000 to 2,000,000.[560] According to "Hidden Killers,"[561] some NGOs suggest that these numbers are still highly exaggerated; The HALO Trust estimated a very low figure of 40,000. But it is almost impossible to estimate the actual figures by partial surveys conducted separately.[562]

Sudan has been a lucky country in the sense that there are several organizations dealing with the de-mining and other mine-related problems. ICBL's Landmine Monitor 2006 Report[563] lists the organizations as follows:

- DanChurchAid (DCA)
- Norwegian People's Aid
- Mines Advisory Group
- Landmine Action UK (LA-UK)
- HALO Trust
- Swiss Foundation for Mine Action
- National mine action NGOs included:
- Operation Save Innocent Lives (OSIL)
- JASMAR
- Friends of Peace and Development Organization
- Sudan Integrated Mine Action Service
- Sudan Landmine Response (SLR in the south and SLIRI/Sudanese Landmine Information and Response Initiative in the north)

The commercial companies involved are RONCO Consulting Corporation and Mechem International.

According to United Nations Mine Action Programme's Sudan Quarterly Report,[564] the number of landmines cleared has increased for the last five years (2002: no mines, 2003: 9 mines, 2004: 401 mines, 2005: 609 mines, 2006: 1411 mines). The

560 African Red Cross & Red Crescent Health Initiative 2010 Website.

561 Hidden Killers 1998.

562 Ibid.

563 Landmine Monitor 2006 Report.

564 Quarterly Report - United Nations Mine Action Program – Sudan, 14. Retrieved 7 November 2007 from http://www.mineaction.org/downloads/1/JulySep2006.pdf.

Landmine Monitor 2006 Report states that, based on the U.N. Mine Action Office (UNMAO), a total of 4,004,912 square meters had been cleared in the country as a result of clearance and survey operations, from the start of de-mining in 2002 to April 2006.[565]

12. Zimbabwe

Zimbabwe's landmine problem stems from the country's struggle for independence (1965-80) and regional instability around the country.[566] During the War of Liberation between 1976 and 1979, the Rhodesian Army laid six major minefields[567] along the northern and eastern borders of Zimbabwe (formerly known as Rhodesia)[568] in order to prevent the operations of guerillas passing through the borders of neighboring Mozambique and Zambia. During the war, the extent of the contamination due to heavily mine laying was about one million acres of land, which is now deserted[569].

Unlike the situation in most other African countries, the landmine problem of Zimbabwe has been well documented, including records of minefields handed over by the Rhodesian army to the Zimbabwe National Army (ZNA) at independence in 1980.[570] Besides, mines were laid in standard patterns, marked and posted with warning signs.[571] Just like most of the other mine-affected countries, estimates on the number of landmines are still uncertain.

Although it was initially estimated by the "Hidden Killers" Report[572] in 2001 that the number of landmines laid was about 2,500,000, today the estimates indicate that the

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565 Landmine Monitor 2006 Report.

566 African Red Cross & Red Crescent Health Initiative 2010 Website.

567 United Nations Mine Action Service Joint Assessment Mission Report for Zimbabwe, 15 Feb. 2000, 4. Retrieved 7 November 2007 from http://www.mineaction.org/downloads/Zimbabwe%20Inter-agency%20Assessment%20Mission%20Report.PDF. (accessed 20 November 2007).

568 Landmine Monitor 2006 Report.

569 Joseph R. Oppong & Ezekiel Kalipeni, *The Geography of Landmines and Implications for Health and Disease in Africa: A Political Ecology Approach*, 18. Retrieved 7 November 2007 from http://muse.jhu.edu/journals/africa_today/v052/52.1oppong.pdf. (accessed 20 November 2007).

570 United Nations Mine Action Service Joint Assessment Mission Report for Zimbabwe, 4.

571 Megan Wertz, "Zimbabwe Country Profile," *Journal of Mine Action*, Issue 10.1, August 2006. Retrieved 7 November 2007 from http://maic.jmu.edu/Journal/10.1/profiles/zimbabwe/zimbabwe.htm.

572 Hidden Killers 2001, The World's Landmine Problem.

actual amount is less than that figure. The Landmine Monitor 2006 Report[573] estimates the amount at between 1.5 and 1.8 million antipersonnel mines.

There is no country, no NGO or commercial companies conducting de-mining activities in the country except for the Zimbabwe National Army (ZNA).[574] ZNA conducts its de-mining operations with three teams.

[573] Landmine Monitor 2006 Report.

[574] Megan Wertz, "Zimbabwe Country Profile."

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V. ORGANIZATIONS AND AGENCIES DEALING WITH LANDMINES AND LANDMINE RELATED PROBLEMS

A. INTRODUCTION

As mentioned in the second chapter, de-mining history is nearly four thousand years old. However, the actual challenge of removing the mines from the ground is a comparatively new issue. De-mining is a relatively new industry that has been growing mostly because of increasing demand from the mine-afflicted countries. The real demand for the clearance services is from the NGOs, international organizations, and wealthy donor countries having financial resources to attract the growing industry.

The most important constraints in the mine action are:

- Necessary funds
- Companies/NGOs with qualified and capable personnel and necessary tools
- Time and the risks associated for the local people or environment

Due to the financial constraints, finding a reasonable, suitable, and optimum solution for the global contamination is, for the time being, quite difficult.

B. AGENCIES DEALING WITH LANDMINES

The number of landmines all around the world and the countries/regions suffering from this problem are so high that all stake holders are trying to get rid of the problem as soon as possible.

When a country or a region has a landmine problem, effort toward an immediate solution is almost inevitable. However, success is not that easy. Due to the aforementioned constraints, solving the minefields and other associated problems is a very complex and painful process. There are two main solution categories in mine action: Domestic and International Solution Mechanisms.

1. Domestic Solutions

The first step to solve the problem is to decide if the problem can be solved domestically. In most cases it has been impossible due to the devastation caused by the wars or the conflicts that the affected country experienced. Most of the mine-afflicted countries are poor—their economies and infrastructure are not strong enough to

perform and fund the de-mining and other mine related operations due to the significant costs. Some countries try to solve the problem by using their own militaries. In most cases this has been executed by the engineering units, which had the necessary experience because of previous mine laying and mine clearance operations.

Most of the highly contaminated countries have Mine Action Coordination Centers established either by international organizations/donors or the host countries' mainly concentrating on the organization and the mine action activities either from domestic sources or international sources. The main focus areas of these centers are: task planning, prioritization, monitoring, coordination of clearance activities and mine awareness training, organizing fund raising campaigns, making necessary arrangements and data collection for the fund appeals from international organizations.

Some countries try to find the necessary funds for their domestic de-mining efforts. After finding the funds, they employ local NGOs/Commercial Firms to perform the de-mining operations. In most cases, these local NGOs/Commercial Firms hire locals to train the de-mining teams. In most cases locals are very eager to do the job because of poverty and their desire to have their fertile areas back as soon as possible.

2. International Solutions

Finding a domestic way to solve the mine problem almost always ends in failure (with a couple of exceptions, such as Kuwait). For the most commonly attempted solution is appealing for help from international organizations, NGOs or wealthy governments known to have contributed to other countries suffering from landmines. Most of the overall de-mining operations conducted globally are carried out by NGOs and commercial firms funded by the international community.

This process is also very complex and painful due to ambiguities, financial constraints, priorities of the donors/organizations, political or ethical considerations as to acceptance of Ottawa Landmine Ban Treaty (Convention on the Prohibition of the Use, Stockpiling, Production, and Transfer of Anti-Personnel Mines and on their Destruction) or status of the ongoing conflict. Most of the time, appeals from the regions with ongoing conflicts are rejected due to safety concerns.

To be able to understand the general overview of efforts for a mine-free world, The Mine Action Processes of major organizations and entities are summarized below:

a. U.N. Mechanism

In the U.N., the national authorities, nongovernmental organizations, international organizations, and U.N. entities ask for U.N. help to solve their landmine related problem. The U.N. examines the situation in the country/region, and if the body decides to support the request, the project is discussed along with all new mine-related projects by the Inter-Agency Coordination Group on Mine Action before being submitted for funding to the international community.[575] First, priorities are set in Steering Committee on Mine Action.[576] UNMAS makes sure that any probable country appeal is coordinated among UNDP and UNICEF country offices before it is funded.[577] Then, efforts for fundraising for the individual projects or overall mine action begin within the U.N. or other supporting organizations. To be able to effectively utilize the available resources, a portfolio of mine-related projects (PMAP)[578] is used as a reference document. It shows proposals on all the mine related aspects of mine affected countries (U.N. supported). Coordinating fund raising activities across the various U.N. actors is a significant problem in itself. The primary channel the U.N. uses for mine action fundraising is the Voluntary Trust Fund (the U.N. has also has The Central Emergency Revolving Fund, UNDP Thematic Trust Fund, UNDP Country Office Trust Funds, UNICEF Program Funding Office and National Committees, The Adopt-A-Minefield program of the United Nations Association of the United States of America and the Better World Fund). Despite the fact that most of the funds raised are channeled through the U.N. system, it is also possible to channel the available funds through external partners such as the NGOs.[579] The U.N. does the first surveys (or reviews the surveys conducted before to evaluate the situation), coordinates, funds/contracts out (depending on the type of appeal or the capabilities of the appealing agency or country) and monitors the ongoing mine action operations from beginning to end.

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575 Resource Mobilization For Mine Action Through The United Nations, 5.

576 Mine Action and effective coordination: the United Nations policy, 19.

577 United Nations Inter-Agency Mine Action Strategy: 2006-2010, 7.

578 U.N. Portfolio of Mine Action Projects (2008).

579 Mine Action and effective coordination: the United Nations policy, 19.

b. U.S. Mechanism

The system is completely different for U.S. mine action funding. Normally, a U.S. humanitarian de-mining program assists a landmine-affected country by establishing a mine action center (MAC) or a national de-mining office, setting up a mine risk education program and a de-mining training program, and often funding actual mine clearance operations. The support continues until the host government develops the necessary de-mining capabilities, then responsibility and management of the program is transferred to the host nation government. U.S. Mine Action Request Approval Process flow is as follows: the U.S. normally contributes to the landmine affected countries' requests through the U.S. embassy in the particular country. In order to be eligible to begin the process, the country's request should come at least from a ministry/deputy ministry. The U.S. also demands that the requesting government submit a formal written request explaining their targets with the landmine problem. After the U.S. Embassy's approval of the request, it is sent to the Office of Weapons Removal and Abatement. The Office of Weapons Removal and Abatement raises this issue at the next scheduled meeting of the Policy Coordination Committee (PCC) Subgroup on Humanitarian Mine Action (chaired by the National Security Council).[580] The PCC Subgroup on Humanitarian Mine Action—with the involvement of the U.S. Department of State, the U.S. Department of Defense (DoD), the U.S. Agency for International Development (USAID), and the U.S. Centers for Disease Control and Prevention—approves, develops, coordinates and makes evaluation on the appeal's conformance to U.S. Directives, Strategies, and other national imperatives.[581] If the PCC Subgroup decides to approve the request, PCC is informed with a Program Determination Letter, whereupon it directs the Office of Weapons Removal and Abatement to carry out a Policy Assessment Visit (PAV) to assess policy issues and to find out if the program is relevant to U.S. policies and strategies. The PCC Subgroup may disapprove the request, or propose either an emergency de-mining initiative or quick reaction de-mining force (Founded by the U.S. Department of State's former Office of Humanitarian De-mining Programs that is based

[580] *To Walk to the Earth in Safety, 6th Edition,* 2.

[581] Ibid, 2.

in Mozambique.[582]) When Country Plan (CP) is approved, and after the Office of Weapons Removal and Abatement has received funds, resources are allocated to provide the support. In addition, the U.S. Embassy in the requesting country assigns a person(s) with the surveillance responsibility of local management of the program.[583]

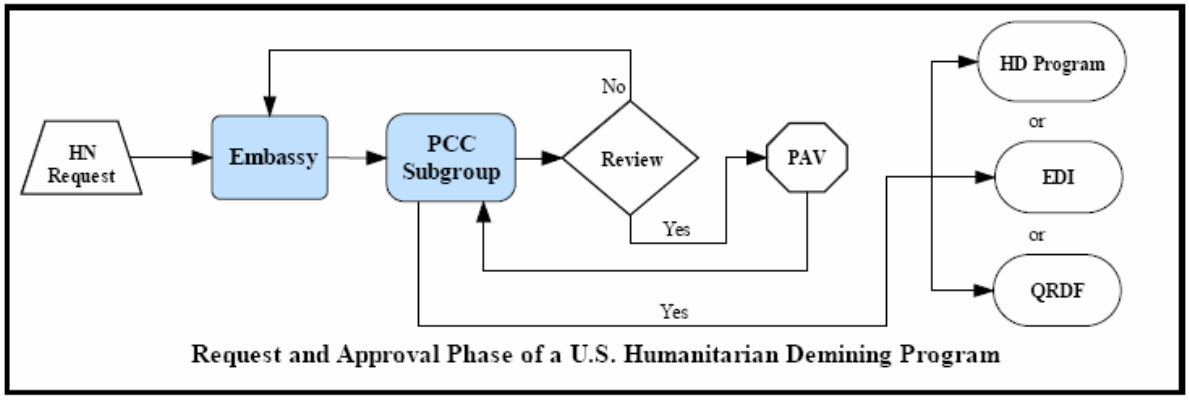

Figure 11. Request and Approval Phase of a U.S. Humanitarian Demining Program

The U.S. government makes contributions to the other humanitarian de-mining organizations as well. One of the organizations the U.S. government supports is Slovenia-based International Trust Fund (ITF) for De-mining and Victims Assistance, assisting mine affected countries in the Balkan region.

c. E.U. Policy

As for the other big donor, the E.U., the procedure is also very long due to the different interests and concerns of several member countries. While one country feels necessity for assisting a particular country, others may opposed the allocation of funds. Besides, the bureaucracy for processing a request and the allocation of funds is comparatively longer than that of any other organization or a country. In addition to these difficulties, financial issues are handled with different priorities by the contributing countries, which makes the process quite longer. When agreed upon by the member countries, the E.U. financially contributes to mine action through a variety of institutions, especially the U.N. Voluntary Trust Fund for Assistance in Mine Clearance and the International Committee of the Red Cross (ICRC).

[582] Roberts, *The Quick Reaction De-mining Force*.

[583] Humanitarian De-mining Programs Policy And Procedures Manual, January 2002 Edition,12.

d. ITF

Another important actor in mine action is International Trust Fund (ITF). The ITF funding mechanism and source selection process for de-mining are as follows:[584] After receiving the appeals from affected countries, agencies or NGOs, ITF reviews the overall situation, determines priorities (by respective national authority, typically the Mine Action Centre), and decides if they will support the appealed project. After deciding upon supporting the request, ITF automatically puts out the projects to open solicitation, provided that the project has matching funds. After solicitation, an Evaluation Commission made up of the ITF, the donor or donors, the MAC of the country where the activities are to be implemented and a representative of the United Nations Development Program (UNDP) selects the winning bid by a physical meeting. After receiving bids, ITF evaluates them technically. Then minefields to be de-mined are examined by the ITF Implementation Office staff prior to de-mining, to determine the de-mining priority. Knowing that increasing the amount of donors will be tough, ITF tries to maintain good relations with the current donors and to find new public and private donors. Another effort to convince the donors to make more donations is encouraging them to make unilateral contributions to any contaminated area. [585]

C. STAKEHOLDERS

While mine contaminated countries are the main stakeholders in mine clearance operations, they actually are the victims.

The real players are the international community trying to help them by means of agencies, donor countries and National/International NGOs. Some major players are listed below:

1. Mine Affected Countries

- Mine Action Coordination Centers
- Military De-mining Units
- Relevant Government agencies

[584] Humanitarian De-mining Programs Policy And Procedures Manual, January 2002 Edition, 7.

[585] Maršič & Hočevar, ITF: A Look at the Past, Present and Future of Mine Action.

2. Organizations, Communities

- U.N.
- E.U.

3. Donor countries (Major ones)

- United States
- European Commission
- Norway
- Japan
- United Kingdom
- Canada
- Germany
- Netherlands

4. International NGOs

- Adopt-A-Minefield (United Nations Association of the USA)
- Association for Aid and Relief, Japan
- CARE International
- DanChurchAid
- Danish De-mining Group
- Genesis Project
- Geneva Call
- HALO Trust
- Handicap International
- International Campaign to Ban Landmines
- Intersos - Humanitarian Aid Organization
- Landmine Survivors Network
- Mines Advisory Group
- Norwegian People's Aid
- Vietnam Veterans of America Foundation

5. Commercial Firms

- ArmorGroup Mine Action
- BACTEC International Limited

- EOD Technology Inc
- GEOMINES S.a.s
- GERBERA
- MAAVARIM - Civil Engineering LTD
- MineTech International
- Ronco Corporation

D. BACKGROUND INFORMATION ABOUT NGOS

Background, purpose, areas of activities and other prominent data about some of major International and National NGOs are presented below:

1. Adopt-A-Minefield (United Nations Association of the USA)

a. Background

The Adopt-A-Minefield (AAM) campaign was founded by the United Nations Association of the USA, aiming at inclusion of individuals, society groups, and commercial groups in the efforts of the United Nations on solving global landmine contamination. Adopt-A-Minefield tries to raise funds to help countries in desperate need of de-mining and eradication of other mine related problems like survivor assistance and raising awareness about the landmine problem.

In this program, different from other fund raising activities, the program sponsors actually adopt an entire mine clearance project and provide the necessary funds (normally between $25,000 and $40,000)[586] to clear a mine field. Since the cost of clearing mine affected areas differs significantly depending on the type and size of minefield and the complexity of the de-mining task, sponsors may not be able to adopt entire minefields, and make smaller contributions (as little as $5)[587]. In this case funds collected are pooled together and then used in a project for which the donors are given

[586] Adopt a Minefield Website, http://www.landmines.org/about/ (accessed 6 October 2007).

[587] Ibid.

detailed activity reports[588] and clearance certificates[589], which are pooled with other contributions. Every dollar raised is forwarded to the United Nations for mine clearance.[590]

The basic idea behind the campaign is that the sponsors raise funds for the mine contaminated area they adopted and return that land to normal use. Due to the differences of necessary funds to clear a landmine depending on the extents and kinds of minefields and the difficulty of the mine clearance operation, sponsors sometimes adopt entire minefields or contribute smaller amounts (as little as $5), which are pooled with other contributions. In this case every dollar raised is forwarded to the United Nations for mine clearance.[591]

Adopt-A-Minefield is a well established campaign aiming to raise maximum funds for mine clearance and mine related operations by conducting campaigns in partnership with the United States, Canada, the United Kingdom, and Sweden.

b. Area of Activity

Fund raising for mine clearance and Survivor Assistance.

c. Where

Adopt-A-Minefield's Mine Action Program provides support for mine clearance and survivor assistance activities in six permanent country programs.

1) Afghanistan: Campaign has supported mine clearance in Afghanistan since 1999 and survivor assistance since 2002.[592] Adopt-A-Minefield

588 Michael Norton, *365 Ways to Change the World: How to Make a Difference One Day at a Time,* (New York: Free Press, 2007), 313.

589 Jenny Lange, "Celebrities and Landmines," *MAIC Journal of Mine Action*, Issue 6.1, April 2002, Website http://www.maic.jmu.edu/JOURNAL/6.1/notes/lange/lange.htm (accessed 6 October 2007).

590 Adopt-A-Minefield (United Nations Association of the USA) (AAM), U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=66 (accessed 6 October 2007).

591 Adopt-a-minefield campaign Website, http://www.landmines.org/about/ (accessed 23 October 2007).

592 Adopt-a-minefield campaign Website, http://www.landmines.org/programs/afghanistan/index.cfm, (accessed 23 October 2007).

reported donating $663,218 to UNDP for mine action in Afghanistan in 2005.[593] Donations between 1996 and 2000 totaled $141,263, and in 2001 totaled $172,500.[594] In 2003, Adopt-A-Team donated $1,260,000 for humanitarian mine action in Afghanistan.[595]

2) Bosnia & Herzegovina: Campaign has supported de-mining operations being conducted in Bosnia & Herzegovina since 1999. AAM works with the International Trust Fund for De-mining and Mine Victims Assistance (ITF) in both Bosnia & Herzegovina and Croatia, and has also supported Survivor Assistance projects implemented by STOP Mines, a national mine action organization in Bosnia & Herzegovina.[596] Donations for Afghanistan were as follows: In 2005: $297,884 ($280,184 through ITF for mine clearance and $17,700 to LSN for survivor assistance)[597]; In 2004: $117,296 for de-mining activities through ITF and Adopt-A-Minefield (USA): $29,189 consisting of $17,700 to LSN-BiH and KM18,170 ($11,489) to STOP Mines for victim assistance[598].

3) Cambodia: Adopt-A-Minefield has supported de-mining projects in Cambodia since 1999 and landmine survivors since 2003, and also supported several organizations providing rehabilitation to landmine survivors.[599] Adopt-A-Minefield contributed $975,945 ($508,157 to CMAC for mine clearance and survivor assistance, $100,087 to Cambodia Trust, $117,100 to Clear Path International, $68,100 to National Center for Disabled People, $62,500 to Operations Enfants de Battambang,

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593 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/afghanistan, (accessed 8 November 2007).

594 Landmine Monitor 2003 Report, Website, http://www.icbl.org/lm/2003/afghanistan , (accessed 8 November 2007).

595 Landmine Monitor 2004 Report, Website http://www.icbl.org/lm/2004/afghanistan , (accessed 8 November 2007).

596 Adopt-a-minefield Campaign Website, http://www.landmines.org/programs/bosniaherzegovina/index.cfm (accessed 23 October 2007).

597 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/afghanistan , (accessed 8 November 2007).

598 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/afghanistan, (accessed 8 November 2007).

599 Adopt-a-minefield Campaign Website, http://www.landmines.org/programs/cambodia/index.cfm, (accessed 23 October 2007).

$40,000 to Vietnam Veterans of America Foundation and $80,000 to World Rehabilitation Fund).[600] Adopt-A-Minefield donated $511,437 to U.N. Trust Fund for de-mining efforts in 2000.[601]

4) Croatia: Adopt-A-Minefield has supported de-mining efforts in Croatia since 1999.[602] Adopt-A-Minefield reported providing $352,536 in 2005[603] and $215,574 in 2004[604] to ITF for mine clearance.

5) Mozambique: Adopt-A-Minefield has supported mine clearance operations in Mozambique since 1999 and survivor assistance since 2004. The Accelerated De-mining Program (ADP), a mine clearance operator that was established with UNDP support soon after a peace agreement was signed in 1992, is AAM's mine clearance partner in Mozambique. When ADP was first established, demobilized soldiers from both sides of the civil conflict were trained to work together as de-miners as part of the post-conflict reconciliation process in Mozambique. ADP operates in the three southern provinces of Maputo, Gaza and Inhambane and provides AAM with information on minefields in these provinces that are urgently in need of clearance.[605] Adopt-A-Minefield is reported to have donated $258,273 to the Accelerated De-mining Program for mine clearance, $35,001 to Landmine Survivors Network for survivor assistance and $50,003 to Mozambique Red Cross Society for survivor assistance in 2005.[606]

6) Vietnam: Adopt-A-Minefield has supported de-mining operations in Vietnam since 2001. The supported activities in Vietnam are executed by

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600 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/cambodia#fn165 , (accessed 8 November 2007).

601 Landmine Monitor 2001 report, Website, http://www.icbl.org/lm/2001/cambodia/ , (accessed 8 November 2007).

602 Adopt-a-minefield campaign Website, http://www.landmines.org/programs/croatia/index.cfm (accessed 23 October 2007).

603 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/croatia, (accessed 8 November 2007).

604 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/croatia , (accessed 8 November 2007).

605 Adopt-a-minefield Campaign Website, http://www.landmines.org/programs/mozambique/index.cfm (accessed 23 October 2007).

606 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/mozambique , (accessed 8 November 2007).

the Mines Advisory Group (MAG). Adopt-A-Team program by AAM has also provided contributions to de-mining teams operating in Quang Binh and Quang Tri in central Vietnam. The MAT operations in both Quang Binh and Quang Tri have proved effective and popular with the local communities and authorities. Adopt-A-Minefield is reported[607] to have donated $370,467 in 2005 ($360,467 to MAG for mine clearance, and $10,000 to Clear Path International for survivor assistance). Adopt-A-Minefield sponsored de-mining in 165 hectares in Hai Lang district, Quang Tri, with other donors in 2002.[608]

2. Association for Aid and Relief, Japan, (AAR JAPAN)

a. Background

AAR JAPAN is a Japanese NGO founded in 1979 as an International relief organization. It was originally named the Association to Aid the Indochinese Refugees (until renamed the Association to Aid Refugees in 1984), and then it was renamed once more to Association for Aid and Relief, Japan in 1999. AAR JAPAN has offices in ten mine affected countries. AAR Published "Not Mines But Flowers," a picture book for AAR's Anti-personnel Landmine Campaign in 1996.

b. Area of Activity

The aim of AAR JAPAN is to provide emergency support, support to people with disabilities, education to avoid mines and assistance to mine contaminated countries.

c. Where

1) Former Yugoslavia: AAR initiated its relief activities in the former Yugoslavia in 1991.[609] AAR Japan sponsors mine awareness by assisting

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607 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/vietnam, (accessed 8 November 2007).

608 Landmine Monitor 2002 Report, Website, http://www.icbl.org/lm/2003/vietnam , (accessed 8 November 2007).

609 Association for Aid and Relief, Japan Website, http://www.aarjapan.gr.jp/english/info/history.html (accessed 23 October 2007).

publication of posters and books for children in three languages at the elementary school level. Moreover, AAR provides legal assistance in Bosnia by providing workshops and explaining about social ownership.[610]

2) Afghanistan[611]: AAR JAPAN has supported Afghanistan's mine action project since 1995 by the cooperation agreement with The HALO Trust. Since December 2001, AAR JAPAN has been providing mine risk education for youth in four districts in Afghanistan (Kabul, Parwan, Baghram and Kunduz)[612]. AAR JAPAN set up offices in Kabul (January 2002) and in Taloqan in Takhar Province (May 2002) and conducted mine actions and provided assistance for people with disabilities. AAR JAPAN has also cooperated with the United Nations Mine Action Center for Afghanistan (UNMACA) to develop methods and materials suited for use in Mine Risk Education programs in Afghanistan. AAR JAPAN founded treatment centers in Takhar Province for people with disabilities, especially for landmine survivors.

3) Angola[613]: AAR JAPAN initiated its mine action project in September 2004 in the province of Lunda Sul, which is on the border with the Democratic Republic of Congo. In the second phase, AAR decided to conduct Mine Risk Education all around the country. AAR received about $69,000 from the Japanese Government in July 2003 for a mine risk education project for the refugees waiting in the Maheba Refugee (Solwezi, North Western Province of Zambia) camp.[614] AAR JAPAN also carried out landmine surveys and then shared the results of these surveys with MAG, to be used in landmine clearance in this region.

4) Cambodia[615]: AAR JAPAN has been running Kien Khleang Vocational Training Center (KKC)[616] in cooperation with the Cambodian government

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610 Landmine Survivors Rehabilitation Services Database Website, http://www.lsndatabase.org/service_main.php?id=100, (accessed 15 November 2007).

611 Association for Aid and Relief, Japan Website.

612 Landmine Monitor 2003 report, Website, http://www.icbl.org/lm/2003/japan , (accessed 8 November 2007).

613 Association for Aid and Relief, Japan Website.

614 Landmine Monitor Report 2003: Toward a Mine-free World : Executive Summary By Human Rights Watch, 502.

615 Association for Aid and Relief, Japan Website.

since 1993. KKC is an occupational training school for the people with disability (PWD) and landmine survivors in Cambodia. Every year a total of forty students enroll at three courses in KKC and learn skills of all kinds.

5) Georgia[617]: AAR has supported de-mining programs in Georgia since 2001.

6) Laos[618]: AAR JAPAN has been implementing production and wheel chair provision project at the National Center for Medical Rehabilitation, in cooperation with JICA.[619]

7) Myanmar (Burma)[620]: The vocational training center provides PWD, suffering from landmine explosions, training for sewing and hairdressing. After the training, AAR support the graduates to become socially and economically independent by finding jobs, opening their own shops, or becoming instructors for the center.

8) Sudan[621]: AAR has been putting together educational material which meets the needs of the Sudanese people to promote landmine awareness.

8) Zambia[622]: AAR JAPAN has provided mine avoidance education for the people in mine-affected areas.

3. CARE International

a. Background

CARE is a private humanitarian organization founded in 1945 in response to the humanitarian crisis in the wake of the Second World War.[623]

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616 Landmine Monitor 2003 report, Website, http://www.icbl.org/lm/2003/japan , (accessed 8 November 2007).

617 Association for Aid and Relief, Japan Website.

618 Association for Aid and Relief, Japan Website.

619 Landmine Monitor 2003 report, Website, http://www.icbl.org/lm/2003/japan , (accessed 8 November 2007).

620 Association for Aid and Relief, Japan Website.

621 Ibid.

622 Ibid.

623 Careks Website, http://www.careks.org/ (accessed 8 November 2007).

It has a headquarters in Atlanta, Georgia and is part of an international confederation of eleven members[624] (CARE Australia, CARE Canada, CARE Danmark (Denmark), CARE Deutschland (Germany), CARE France, CARE International Secretariat, CARE Japan, CARE Nederland (Netherlands), CARE Norge (Norway), CARE Österreich (Austria), CARE Raks Thai (Thailand), CARE UK, CARE USA) committed to helping communities in the developing world achieve lasting victories over poverty[625].

Its headquarters is in Atlanta, Georgia. CARE has field offices in several U.S. cities (Boston, New York, Philadelphia, Atlanta [Headquarters], Washington, D.C., Chicago, Houston, Minneapolis, Los Angeles, San Francisco, Seattle) and in each of the countries where it works.[626]

b. Area of Activity

Originally its mission was distributing lifesaving CARE Packages to survivors of World War II. Over the years, its work has expanded to all kinds of humanitarian support activities. Today it has more than 12,000 staff, most of whom are citizens of the countries where it works in trying to create lasting solutions to root causes of poverty.[627]

The main focus of the organization is implementing programs in the following areas: education; emergency relief and rehabilitation; food security; health and population; economic development; and environment.[628]

CARE implements relief and development programs in mine affected countries. Landmine awareness instructors, who are a component of all CARE de-mining activities, visit villages to discuss how to mark a mine once it is found and what to do in the event someone triggers a mine. Each program targets different audiences. Rather than

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624 CARE International Website, http://www.care.org/about/contact_ci.asp (accessed 24 October 2007).

625 CARE International Website, http://www.care.org/about/contact_regional.asp (accessed 24 October 2007).

626 CARE International Website, http://www.care.org/about/faqs.asp (accessed 24 October 2007).

627 CARE International Website, http://www.care.org/about/history.asp (accessed 24 October 2007).

628 U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=34 (accessed 15 November 2007).

detect, inch by inch, every landmine buried in a particular country or area, CARE's solution is to work with communities to remove the threat of the landmines that lie between farmers and their fields, students and their schools and children and the clinics that serve them.[629]

c. Where

CARE's relief and development programs are implemented in thirty-nine mine affected countries. Its work is conducted in the most heavily mined areas, including Angola, Afghanistan, Cambodia, Somalia, Bosnia, and the province of Kosovo. The organization is about to begin a landmine program in Albania. [630]

1) Kosovo: Before dealing with the landmine related problems in Kosovo, CARE International focused first mainly on humanitarian assistance projects for the IDPs and refugees affected by several conflicts in 1997. During the NATO intervention to the crisis in the region, CARE helped the refugees by managing eight refugee camps, providing shelter for over 120,000 people. CARE also set up community service and health programs, including youth centers, information centers, mother and child health centers, trauma counseling and mine-awareness programs.[631]

CARE has assumed responsibility for 220 of the 425 identified mine fields throughout the province since September 1999.[632] CARE managed to respond to the land mine problem facing returning refugees and residents in Kosovo with the help of private U.S. donor support.

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629 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/lm_careresponse.asp (accessed 24 October 2007).

630 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/lm_careresponse.asp (accessed 24 October 2007).

631 Careks Website, http://www.careks.org/ (accessed 8 November 2007).

632 Lionel Dyck and Bob MacPherson, "Overview of Mine Awareness Programs in Kosovo & Somaliland," *Journal of Mine Action*, Issue 4.3, Website http://maic.jmu.edu/Journal/4.3/focus/CARE/care.htm, (accessed 24 October 2007).

Three days after the first NATO troops moved into Kosovo, with its immediate emergency response CARE managed to set up eight refugee camps housing more than 100,000 refugees, and set up emergency programs in Urosevac, Kacanik, Lipljan and Mitrovica.[633]

In addition, CARE and Mine-Tech were asked by UNICEF and UNHCR to conduct mine awareness training for all United Nations and nongovernmental organization (NGO) staff in Pristina. To accomplish this program and carry out emergency mine actions, CARE has employed its technical partner, the Zimbabwe-based firm, Mine-Tech. The program trained a total of 343 volunteers from 187 villages who then gave mine awareness lectures to 4,790 people. The program's mine clearance activities included clearing 11,280 houses and sixteen schools; removing 528 anti-personnel mines; 201 anti-tank mines; and 197 pieces of unexploded ordnance (UXOs).[634] Mine-Tech staff also provided mine awareness training to the Kosovo Police Service. CARE worked with communities to identify the contaminated sites and develop and implement mine awareness activities. Four teams trained local mine awareness volunteers within target communities. Each team trained two people in each village, usually a man and woman who were nominated by the community. These volunteers served as the focal point for mine awareness training and reporting in their communities. They maintained simple "community maps" showing the location of mines, minefields and/or UXO, and were responsible for maintaining a community marking system.

In addition, Mine-Tech (contracted by CARE international with German funding)[635] has played a vital role in helping to clear the main power line from Macedonia. [636]

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633 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/downloads/De-miningInitiatives1999_2000.doc , (accessed 24 October 2007).

634 Mine Action Canada Website, http://www.minesactioncanada.org/home/index.cfm?fuse=AboutUs.MembershipProfile&ID=15 , (accessed 8 November 2007).

635 Landmine Monitor Website, http://www.icbl.org/lm/2002/kosovo, (accessed 8 November 2007).

636 CARE International Website, http://www.care.org/vft/kosovo/kosovo_care.asp, (accessed 24 October 2007).

2) Albania:[637] CARE began its program in Albania in August 1999 by launching its Mine Education and Awareness Project in Albanian communities along the Kosovo border. CARE trained some locals to work as mine awareness educators. These people were trained in mine identification, basic mine safety, first aid, radio procedures and data collection. Trainees helped identify mine-affected communities and establish Mine Committees in each. CARE's Mine Education and Awareness efforts have been very successful in reducing the number of accidents in risky areas. Nevertheless, landmines are still very risky for the people living in Northern Albania today. CARE's purpose was not only to drop the number of fatalities but also to allow residents to come back to their fields to begin planting and re-start their ordinary lives. In 2002, CARE International carried out the survey in the three districts of Kukes, covering all the priority villages identified by Albanian Mine Action Committee (AMAC).[638] The survey covered 4.5 percent of the population of the selected villages and attempted to sample all relevant population groups.[639]

3) Angola:[640] The CARE Angola Mines Related Interventions Project (CAMRI) was executed in order to lessen the landmine contamination threat and make the quality of life in rural areas better. CAMRI's purpose was to provide mine awareness and conduct de-mining activities in Bie Province. CAMRI used the local people and carried out assessments, mine awareness training and clearance operations all through the area. Until June 1999, CAMRI continued all of these activities except for actual clearance and disposal which was undertaken by the HALO Trust. The CAMRI Project mainly focused on performing assessments of possible livelihood areas, drinkable water sources, routes, and suitable areas for agriculture. CAMRI conducted hundreds of surveys, with lots of landmine and UXO found and destroyed. Besides, they cleared the farmland for about 30,000 families and conducted mine awareness education programs

637 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/downloads/De-miningInitiatives1999_2000.doc , (accessed 24 October 2007).

638 Landmine Monitor 2003 Report Website, http://www.icbl.org/lm/2003/albania , (accessed 8 November 2007).

639 The Albanian Mine Action Program, Journal of Mine Action, Issue 7.2, August 2003, http://maic.jmu.edu/JOURNAL/7.2/focus/swart/swart.htm, (accessed 8 November 2007).

640 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/downloads/De-miningInitiatives1999_2000.doc, (accessed 24 October 2007).

for 58,000 people, including 38,000 children, in over 127 communities. CARE contributed to the general survey conducted in the country between 1994 and 1998, with the subcontract awarded to the Greenfield Consultants.[641]

4) Cambodia:[642] The CARE Cambodia Integrated De-mining and Development Program (IDDP) was launched in 1999 in Bavel district, Battambang Province, Northwestern Cambodia to assist in the resettlement effort. In the IDDP, local authorities, the Cambodian Mine Action Center (CMAC) and CARE first identify mined land suitable for resettlement, which may already have recently resettled families on it. While CMAC marked and de-mined key sites, CARE began mapping to establish accurate boundaries to preempt the appropriation of de-mined land. CARE provided water jars, hygiene training, fruit trees and agricultural training to help the villagers establish themselves. The integrated program used was based on the "Bad Honnef framework," an international set of humanitarian de-mining guidelines that emphasizes community participation and the importance of development activities in de-mining programs. CARE recognized the importance of building effective national de-mining capacity. IDDP enabled CMAC to focus on its core strength, and removed it from issues related to land use and ownership. The de-mining process was greatly enhanced through the provision of the RHINO system, a 60-ton remote controlled de-mining tank provided through funding from the Federal Government of Germany. CMAC and the RHINO system cleared more than 1000 pieces of unexploded ordnance in eighteen months. To continue the de-mining effort, CARE contracted several de-mining platoons through funds from the U.S. State Department and the Australian Government.

CARE Cambodia supported the Integrated De-mining and Development Project (IDDP) in the amount of $183,018.82 in support for a two years period (1 July 2002-30 June 2004) de-mining operation implemented by CMAC De-

641 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/angola , (accessed 8 November 2007).

642 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/downloads/De-miningInitiatives1999_2000.doc , (accessed 24 October 2007).

mining Unit-2, Battambang Province. Later on, CARE agreed to extend the contract for ten more months (1 November 2004-31 August 2005).[643]

5) Somalia/Somaliland: The Somalia Mine Action Program was initiated to overcome the problem of loss of fertile land, reduced access to the public transportation network and constant landmine related human life losses. The program was jointly coordinated through CARE, the Somaliland Ministry of Rehabilitation, Repatriation, and Resettlement, and the UNDP/Somalia Mine Action Center. CARE Somalia contracted MINE-TECH to conduct landmine surveys.[644] In 1999, CARE International completed thirty-eight Level I and Level II surveys in Awadal and Galbeed regions.[645] MINE-TECH also conducted public mine awareness and education programs.[646]

CARE International received $343,817 from the U.S. in 1998 to start a Level II survey in Somaliland, contracted to Mine Tech, and to support the SMAC.[11] The project started in March 1999 and has been further expanded with $600,000 in funds from the European Commission and the U.S. Department of State.[647] Between August and September 2000, CARE International received 1,040,757 Euros (approximately U.S. $916,000) in funds from the European Commission for mine action activities in Somaliland.[648]

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643 Cambodian Mine Action Center, 2005 Annual Report, http://www.cmac.org.kh/annual_report/ar2005/project_implementation.pdf, (accessed 9 November 2007).

644 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/downloads/De-miningInitiatives1999_2000.doc , (accessed 24 October 2007).

645 The Institute for Practical Research and Training (IPRT) Website, http://www.iprt.org/somaliland%20Landmines.htm, (accessed 9 November 2007).

646 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/downloads/De-miningInitiatives1999_2000.doc, (accessed 24 October 2007).

647 The Institute for Practical Research and Training (IPRT) Website, http://www.iprt.org/somaliland%20Landmines.htm, (accessed 9 November 2007).

648 Landmine Monitor 2001Report, http://www.icbl.org/lm/2001/somaliland/ (accessed 9 November 2007).

d. Financials

According to CARE's Website[649], Macpherson explains the financial constraint with the statement:

> CARE must raise approximately $1 million each month to keep our landmine programs going. This isn't because people are getting paid a lot of money. It's because the requirements of de-mining are so exhaustive and so technical. It's just expensive to do. It costs about $3 to manufacture a landmine, but between $300 and $1,000 to remove one.

4. DanChurchAid

a. Background

DanChurchAid (DCA) was established in Denmark in 1922. Today DCA is considered to be one of the major Danish humanitarian non governmental organizations (NGO) aiming to assist the poor people.[650] It has been involved in mine action since the mid-1980s[651] through its support to LWF (The Lutheran World Federation[652])'s De-mining and Resettlement Project in Cambodia.[653]

b. Area of Activity

DanChurchAid's international activities are mainly concentrated on six types of programs (Political Space, Peace and Reconciliation, Food Security, Basic Social Services (HIV/AIDS), Relief Aid, Humanitarian Mine Action), all linked to DanChurchAid's concepts and development principles.[654] DanChurchAid carries out its own HMA programs and sometimes emergency de-mining activities. But, most of the time DCA works through local associates or the associates of ACT International. DCA is an independent non-profit organization funded by personal or institutional contributions

649 CARE International Website, http://www.care.org/newsroom/specialreports/land_mines/lm_careresponse.asp , (accessed 24 October 2007).

650 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/who_we_are , (accessed 24 October 2007).

651 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do/issues_we_work_on/hma (accessed 24 October 2007).

652 The Lutheran World Federation Website, http://www.lutheranworld.org/, (accessed 24 October 2007).

653 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do/issues_we_work_on/hma/read_more/past_dca_involvement_in_mine_action , (accessed 24 October 2007).

654 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do, (accessed 24 October 2007).

and funds from the Danish government (Danida), the U.N., E.U. and other bilateral donors. The organization has a long-term framework agreement with Danidaand a framework partnership agreement with the Humanitarian Aid Office (ECHO) of the European Commission, and has implemented numerous contracts with the EuropeAid Co-operation Office and several U.N. agencies.[655]

c. Where

Today, DCA has Humanitarian Mine Action (HMA) activities in Albania, Lebanon, Angola, Burundi, DR Congo and Sudan. Focus is primarily on mine awareness, mine clearance, capacity building, and advocacy activities.

The total list of countries DCA serves and has served is as follows[656]:

- Albania
- Angola
- Bangladesh
- Burma (Myanmar)
- Burundi
- Cambodia
- Congo, Democratic Republic of the
- Denmark
- El Salvador
- Eritrea
- Ethiopia
- Guatemala
- Honduras
- India
- Kazakhstan
- Kenya
- Kyrgyzstan
- Lebanon

655 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/partners_networks_donors (accessed 24 October 2007).

656 James Madison University, Global Mine Action Registry, Website, http://maic.jmu.edu/gmar/details.asp?OID=530 , (accessed 9 November 2007).

- Macedonia, FYR
- Malawi
- Nepal
- Nicaragua
- Occupied Palestinian Territory
- Philippines
- Russian Federation
- South Africa
- Sri Lanka
- Sudan
- Tanzania
- Zambia
- Zimbabwe

1) Albania: DCA began its humanitarian mine action program in Albania in 2002 after completion of de-mining operations conducted by DCA in Kosovo between 1999 and 2001. De-mining operations conducted by DCA include manual de-mining, technical and impact surveys, mine dog detection (MDD) and battle area clearance on high and medium priority areas.[657]

De-mining and technical survey operations managed by DCA in 2003 were sponsored ($1,571,847) by the Czech Republic, European Commission and U.S. via ITF.[658] The DCA impact survey team identified the exact places of twenty-six more minefields in 2004 and reduced by more than six square kilometers the fifteen square kilometers originally considered dangerous since 2002.[659] DCA became the only de-mining organization operating in Albania in 2004-2006. The organization carried out

[657] DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do/issues_we_work_on/hma/read_more/humanitarian_mine_action_in_albania , (accessed 24 October 2007).

[658] Landmine Monitor 2004 Report, Website, http://www.icbl.org/lm/2004/albania , (accessed 9 November 2007).

[659] Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/albania , (accessed 9 November 2007).

the Humanitarian Mine Action Project which was funded in 2005 through ITF (by the U.S. Department of State, Germany and DanChurchAid's private donors) and the Technical Survey and Clearance Project-Building of National Clearance Capacity (started in March 2005) funded by the European Commission (EC) through UNDP.[660] DCA de-mined and released 1.38 square kilometers of mine-affected land in northeast Albania in 2005[661].

2) Lebanon: DCA is performing de-mining operations through ACT International (Action by Churches Together)[662]. DCA also supports approximately 3,000 families with "non food" items, and tries to raise funds for mine clearance projects in Lebanon.[663] In February and March 2002, DCA provided The National De-mining Office (NDO) with training in Information Management System for Mine Action (IMSMA).[664]

3) Angola: DCA began operating in Angola in 2003 in partnership with Lutheran World Federation (LWF).[665] In 2004, DCA completed training its first team of de-miners in mid-November 2004 and cleared 3,500 square meters.[666] In 2005, DCA worked in the eastern provinces of Moxico and Lunda Sul. DCA mainly concentrated on tasks assigned by its partner, LWF, and also worked on road survey and clearance. In the same year DCA received a donation ($1,250,980) for mine clearance and MRE [667]

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660 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/albania, (accessed 9 November 2007).

661 Ibid.

662 Action by Churches Together Website, http://www.act-intl.org/ (accessed 9 November 2007).

663 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do/issues_we_work_on/hma/read_more/humanitarian_mine_action_in_lebanon , (accessed 24 October 2007).

664 Landmine Monitor 2003 Report, Website, http://www.icbl.org/lm/2003/lebanon , (accessed 9 November 2007).

665 Landmine Monitor 2004 Report, Website, http://www.icbl.org/lm/2004/angola , (accessed 9 November 2007).

666 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/angola , (accessed 9 November 2007).

667 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/angola , (accessed 9 November 2007).

DCA's work in Angola concentrates on humanitarian mine action and contributions to peace and settlement efforts. Priority is given to boosting the partners' capacity to deal with internally displaced persons (IDPs) and returning refugees. DCA focuses through the Humanitarian Mine Action Program on the provinces Moxico and Lunda Sul in eastern Angola.[668]

4) Burundi: DCA developed a project specifically aimed at providing the returning refugees and IDPs with safe entrance to the country and clearing landmines blocking the roads to the communities. The actual de-mining process began with the training of two mobile mine clearance teams on 1 October 2004. These two clearance teams were to execute clearance in the Makamba province. The Program got extended until the end of February 2006 with additional ECHO funding. Between 7 and 17 March 2004, DCA carried out an assessment activity in Burundi, including provinces bordering Tanzania and the Kibondo refugee camps in Tanzania.[669] DCA has conducted mine risk education training for 40,000 Burundian refugees in Kibondo refugee camps in Tanzania as of September 2004.[670]

5) Democratic Republic of Congo: DCA surveyed and marked the Tchangatchanga area in July 2004.[671] The de-mining efforts were concentrated on the former insurgent area of Tanganyika in the north of Katanga region. By February 2006, some 70,000 square kilometers of suspected areas in Tanganyika were surveyed and 126 mined areas and 270 UXO sites mapped.[672] After getting additional funding support from the German Federal Foreign office and Danida in 2005, two more mobile clearance teams were used in Northern Katanga and South Kivu in order to lessen the risks and

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668 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do/issues_we_work_on/hma/read_more/humanitarian_mine_action_in_angola , (accessed 24 October 2007).

669 Landmine Monitor 2004 Report, Website, http://www.icbl.org/lm/2004/burundi (accessed 9 November 2007).

670 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do/issues_we_work_on/hma/read_more/humanitarian_mine_action_in_angola, (accessed 24 October 2007).

671 Mine Action in DRC, UNMACC Newsletter No.1, 15 September 2006, Website, http://mineaction.org/downloads/1/DRC%20Newsletter.pdf, (accessed 9 November 2007).

672 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/drcongo, (accessed 9 November 2007).

open wide areas of land for the people to rebuild their lives.[673] From November 2005 to March 2006, DCA undertook an urgent de-mining operation in Tchangatchanga.[674]

In 2004 DCA received a donation of $551,001 from Denmark for mine action.[675] In 2005, DCA received a donation of $833,987 from Denmark for MRE and victim assistance, a donation of $1,170,206 from the European Commission for mine clearance and a donation of $435,715 from Germany for de-mining in Katanga province.[676]

6) Sudan: In its different approach to help the efforts to provide peace and revive trust between the different sides of the conflict, DCA made use of NGOs JASMAR and OSIL from the Sudanese government and the Sudan Peoples Liberation Movement sides, respectively. The joint efforts on capacity building led to increased confidence and reliance on each other. The Program DCA implemented includes several operations including de-mining and Mine Risk Education. One DCA de-miner team working with Mine Detection dog teams released the first road for food aid in nineteen years in 2003. Today, DCA HMA Program has two manual de-mining teams, two MRE teams and an EOD team in the country.[677]

5. Danish De-mining Group

a. Background

Danish De-mining Group (DDG) was established in 1997 as an independent organization. It has since merged with the Danish Refugee Council (DRC) in order to create a Humanitarian Mine Action unit within the organization, hence

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673 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do/issues_we_work_on/hma/read_more/humanitarian_mine_action_in_dr_congo , (accessed 24 October 2007).

674 Mine Action in DRC, UNMACC Newsletter No.1, 15 September 2006, Website, http://mineaction.org/downloads/1/DRC%20Newsletter.pdf, (accessed 9 November 2007).

675 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/dem_congo , (accessed 9 November 2007).

676 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/drcongo , (accessed 9 November 2007).

677 DanChurchAid Website, http://www.danchurchaid.org/sider_paa_hjemmesiden/what_we_do/issues_we_work_on/hma/read_more/humanitarian_mine_action_in_sudan, (accessed 9 November 2007).

benefiting from synergies in cooperation but not being limited at the same.[678] Now DDG is a joint venture between Danish People's Aid, Caritas Denmark, UNICEF Denmark, and the Danish Refugee Council.[679] DDG's programs are mostly supported by Danida, Sida, MoFA of Japan, MoFA of Austria, EC, ECHO, UNMAS, UNHCR and UNDP, along with private donors.[680]

b. Area of Activity

The main focus of DDG is on de-mining and EOD operations, mostly to lessen the threats posed by landmines and Explosive Remnants of War (ERW).

DDG tries to work according to the principles of the Ottawa Convention's five pillars of Mine Action (1. Removing and destroying landmines and explosive remnants of war and marking or fencing off areas contaminated with them, 2. Mine-risk education to help people understand the risks they face, identify mines and explosive remnants of war and learn how to stay out of harm's way. 3. Medical assistance and rehabilitation services to victims, including job skills training and employment opportunities. 4. Advocating for a world free from the threat of landmines and encouraging countries to participate in international treaties and conventions designed to end the production, trade, shipment or use of mines and to uphold the rights of persons with disabilities, 5. Helping countries destroy their stockpiles of mines as required by international agreements, such as the 1999 anti-personnel mine-ban treaty.)[681], but does not refrain from conducting field activities for the removal of anti personnel mines, and regularly conducts clearance of the full range of ERW.

DDG strives for achievement in capacity building and the training of local organizations and authorities. DDG conducts several activities of Humanitarian Mine Action: Landmine Impact Survey (LIS), Mine Risk Education (MRE), Victim Assistance (VA), Landmine Clearance, Explosive Ordnance Disposal (EOD), Stockpile Destruction

678 Danish De-mining Group Website, http://www.danishde-mininggroup.dk/About_Danish_Deminin.3862.0.html (accessed 13 October 2007).

679 GICHD Website, http://www.gichd.org/links-information-database/organisations/?tx_gichd_pi1organisation_id=302 , (accessed 24 October 2007).

680 Danish De-mining Group Website, http://www.danishde-mininggroup.dk/About_Danish_Deminin.3862.0.html (accessed 25 October 2007).

681 U.N. Mine Action Website, http://www.mineaction.org/section.asp?s=what_is_mine_action , (accessed 24 October 2007).

and Survey at all levels, Total Quality Management (TQM) along with Disarmament, Demobilization and Reintegration (DDR) and Village By Village Clearance (VBVC).[682]

c. Where

1) Afghanistan: Danish De-mining Group initiated a de-mining program in Afghanistan in the autumn of 1998, in cooperation with the Mine Action Program Afghanistan (MAPA). The program included basic and advanced training by which de-miners were made familiar with new explosive ordnance types representing a deadly hazard to locals all over the country. As of 2007, DDG operates several mine action teams in Afghanistan: six Manual De-mining Teams, sixteen EOD Teams, three Stockpile Destruction (EOD) Teams, a Mechanical De-mining Unit (MDU), and four Mine Risk Education (MRE) Teams. All Teams have been cross-trained to conduct various survey assessments. Total manpower of DDG in Afghanistan is 362 field staff[683]. During the period 1999-2007 DDG recovered and disposed of more than 1,000,000 unexploded ordnance (UXO) and 100,000 landmines, and Mine Risk Education was delivered to 50,000 people in the affected communities.[684] DDG's battle area clearance has grown to 3.3 million square meters in 2005, and mine clearance area to 172,718 square meters in 2005.[685]

2) Iraq: DDG has been operating in Iraq since 2003. The first humanitarian mine action of DDG in Iraq was its battle area clearance and explosive ordnance disposal (BAC EOD) operations in Basra region of southern Iraq since July 2003. In July 2003, four multi-skills (EOD) Quick Response Teams (QRT) were deployed from Afghanistan to clear explosive remnants of war (ERW) in the highly contaminated areas in and around Basra. Iraqi national de-miners were immediately trained in October 2003 in order to replace the Afghan de-miners. Training for other de-miners was completed in 2005. As a result, all the field operations of DDG were carried

682 Danish De-mining Group Website, http://www.danishde-mininggroup.dk/About_Danish_Deminin.3862.0.html , (accessed 24 October 2007).

683 Landmine Monitor 2006 report Website, http://www.icbl.org/lm/2006/afghanistan , (accessed 9 November 2007).

684 Danish Refugee Council Website , http://www.drc.dk/index.php?id=3724, (accessed 25 October 2007).

685 Landmine Monitor 2006 report Website, http://www.icbl.org/lm/2006/afghanistan , (accessed 9 November 2007).

out by local operators supervised by local managers, field supervisors, and team leaders with a minimum of international technical support. With the UNDP's lead, an Iraqi NGO—Rafidain De-mining Organization (RDO)—capable of sustained independent mine action work in the region was established in May of 2007.[686] In southern Iraq DDG, funded by the Danish government and UNDP, operated in Basra governorate in 2005 with five EOD teams, each with five operators, and five battle area clearance teams of ten operators each, with support staff.[687]

3) Somaliland: DDG began its mine-clearance operations in Somaliland in 1999 after being awarded 4 million Kroner (approximately $600,000) by the Danish Foreign Ministry in January 1999. Following the completion of the initial feasibility project, the DDG received $1.4 million more from the Danish Government to keep its operations going and increase its mine clearance activities in Somaliland[688]. In 1999, DDG set up a base camp at Adadley, seventy kilometers west of Hargeisa, and initiated Level I and Level II surveys and de-mining.[689] The focus of the mine action carried out by DDG was opening the area for IDPs and refugees to return back to their villages, by de-mining roads in and around their villages and other social areas. DDG carried out de-mining in connection with the repairing of the roads, connecting Ethiopia and Somaliland, and Puntland and Somalia.[690] The operation capacity was comprised of 135 local employees, one 65-man de-mining team and four mobile EOD teams.[691] After restructuring in March 2006, DDG began to employ fifty-four local staff organized into a headquarters in Hargeisa and four mobile Village by Village EOD clearance (VBVC) teams. DDG terminated its de-mining operations in the country on 31 March 2006. DDG

686 Danish Refugee Council Website http://www.drc.dk/index.php?id=3727 , (accessed 25 October 2007).

687 Landmine Monitor 2006 report Website, http://www.icbl.org/lm/2006/iraq, (accessed 9 November 2007).

688 The Institute for Practical Research and Training (IPRT) Website, http://www.iprt.org/somaliland%20Landmines.htm, (accessed 11 November 2007).

689 Landmine Monitor 2000 report, Website, http://www.icbl.org/lm/2000/somaliland , (accessed 11 November 2007).

690 Danish Refugee Council Website , http://www.drc.dk/index.php?id=3725 , (accessed 11 November 2007).

691 Megan Wertz, "Somaliland Profile," *Journal of Mine Action*, Issue 10.1, August 2006, Website, http://maic.jmu.edu/JOURNAL/10.1/profiles/somaliland/somaliland.htm , (accessed 11 November 2007).

also persuaded the army to destroy its stockpiled landmines. In total, as of the end of May 2006, DDG destroyed more than 100,000 pieces of UXO and more than 10,000 mines and cleared about 1.8 square kilometers of land to the local people.[692]

4) Sri Lanka: DDG started its de-mining program in Sri Lanka in January 2003. The operation continues in Jaffna with eight teams and two survey sections and in Trincomalee with three teams and one survey section. In response to the urgent task of clearing the new contamination of villages in Trincomalee, DDG has utilized government owned mini flails technically operated by FSD (Fondation Suisse de Deminage) in the de-mining operations.[693] From the start of operations in November 2003 to April 2005, DDG has cleared 252,483 square meters manually, released 47,789 square meters through technical surveys, and released 708,750 square meters through area reduction and BAC. In total, over one million square meters of land in Sri Lanka have been released to the public by DDG, in the process destroying 4,343 antipersonnel mines, one antivehicle mine and 303 UXO.[694]

5) Chechnya: Danish De-mining Group started MRE Program in August 2000.[695] DDG has also used mass-media campaigns to reach everyone in Chechnya in MRE projects.[696] Although estimated to be heavily mine contaminated, the actual extent of contamination is not known for Chechnya. DDG's MRE Program in Chechnya is conducted by three mobile teams of eleven members.[697] Three DDG mobile MRE teams comprised of instructors have visited several institutions in Chechnya,

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692 Landmine Monitor 2006 report, Website, http://www.icbl.org/lm/2006/somaliland/ , (accessed 11 November 2007).

693 Danish Refugee Council Website , http://www.drc.dk/index.php?id=3726 , (accessed 25 October 2007).

694 Landmine Monitor 2005 report, Website, http://www.icbl.org/lm/2005/sri_lanka , , (accessed 25 October 2007).

695 Landmine Monitor 2005 Report, Website http://www.icbl.org/lm/2005/chechnya , (accessed 11 November 2007).

696 Kateland Shane, "Chechnya Profile," *Journal of Mine Action*, Winter 2006 Issue, Website, http://maic.jmu.edu/Journal/10.2/profiles/chechnya/chechnya.htm, (accessed 11 November 2007).

697 Danish Refugee Council Website, http://www.drc.dk/index.php?id=3741, (accessed 25 October 2007).

conducting presentations and handing out educational materials. DDG also organized MRE festivals with the participation of more than 100 schools.[698]

6) South Sudan: DDG Mine Action initiated its de-mining program in South Sudan in the spring of 2006, with headquarters in the town of Juba and field operations in Kajo Keji. The Program looks to support, motivate, and facilitate the repatriation of refugees to South Sudan. All tasking and prioritization of de-mining activities are coordinated by the South Sudan De-mining Commission (SSDC) and the United Nations Mine Action Authority (UNMAO) in Juba. DDG has four Survey/EOD teams and five MRE teams serving in the country.[699]

7) **Uganda**: While four multipurpose de-mining teams have been created with army engineers and police officers tasked and supervised by the Ugandan Mine Action Centre (UMAC), DDG opened a project to support the repatriation process. With this project, existing UMAC teams will enhance their survey capacity, de-mining, and MRE capabilities. DDG also provides essential equipment to the teams to be able to operate safely.[700]

6. Genesis Project[701]

a. Background

Genesis Project is a local, non-governmental, non-profit humanitarian organization, set up in Banja Luka, Republika Srpska, Bosnia and Herzegovina, in June 1996.

b. Area of Activity

The main goals of Genesis are to educate children and adults about ecology and environmental protection, to educate children and adults about gender equality, to reduce the negative impact that mines and UXO have on children and their communities in Bosnia and Herzegovina, to spread the idea of interactive education through live puppet show performances depicting different educational topics (ecology,

698 Shane, "Chechnya Profile."

699 Danish Refugee Council Website, http://www.drc.dk/index.php?id=3740, (accessed 25 October 2007).

700 Danish Refugee Council Website.

701 Genesis Website, http://genesis-bl.org/eng/home.htm (accessed 25 October 2007).

environmental protection, mine risk education, childrens' rights, prevention of addiction and diseases, etc.), to educate children and youth about healthy life styles, to develop and support various co-existence initiatives throughout B&H, to strengthen communities with the purpose of teaching people about freedom of speech, democracy, and basic human rights, to help war traumatized children and their families, and to build up democratic governance. The Genesis Project staff is comprised of local residents.[702]

c. Where

In the past, as now, Genesis Project has targeted mainly rural areas of Republika Srpska/Bosnia and Herzegovina, trying to help people in numerous ways, starting with setting up libraries and finishing with puppet show performances for the children. Recently, the majority of Genesis Project activities have been focused on the whole of Republika Srpska and some parts of Federation BiH.

d. Financials

In 2006, Genesis Project is funded by the Delegation of European commission to B&H, UNICEF B&H, CIDA, International Orthodox Christian Charity - IOCC and Balkan Aid Relief Foundation.

In previous years, the European Commission, Brussels through the Dutch foundation "Mala Sirena", UNHCR, USAID, ECHO, Open Society Fund-Soroš, International Rescue Committee, IOCC and The Salvation Army have funded Genesis Project.

7. Geneva Call

a. Background

Geneva Call was launched in March 2000 (formed under Swiss law) by members of the International Campaign to Ban Landmines (ICBL).

b. Area of Activity

Geneva Call is an international humanitarian organization dedicated to engaging armed non-state actors (NSAs) to respect and to adhere to humanitarian norms, starting with the ban on anti-personnel (AP) mines. Currently, Geneva Call focuses on lobbying armed NSAs to put an end to the use, manufacture and stockpiling of AP mines.

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[702] U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=105, (accessed 12 November 2007).

Geneva Call provides an inventive system for NSAs which did not take part in drafting treaties: to express obedience to the rules of Ottawa anti-personnel mine ban treaty (MBT) by their acceptance to the "Deed of Commitment for Adherence to a Total Ban on Anti-Personnel Mines and for Cooperation in Mine Action." The Government of the Republic and Canton of Geneva serves as the guardian of these Deeds.[703]

c. Where[704]

Geneva Call has tried to convince all the fighting factions in all the countries not to use landmines in any circumstances. Besides, Geneva Call undertook several missions to verify mine stocks held by signatory factions and prepare the ground for their destruction.

- Africa: Burundi, Senegal, Somalia, Western Sahara
- Asia: Burma/Myanmar, India, Nepal, Philippines, Sri Lanka
- Latin America: Colombia
- Middle East
- Europe: Turkey
- South Caucasus

8. HALO Trust

a. Background

The HALO (the Hazardous Areas Life-support Organization) Trust is a non-political, non-religious NGO, registered in Britain as a charity (no.1001813) and in the United States as a 501(c)(3) Not-for-Profit organization.[705] HALO's global headquarters is in Scotland, with a sub-office in New York.[706] The initiative, involving some 25 British and 950 other staff began in 1988 by the efforts of founder-chairman Colin Mitchell (a British Member of Parliament and former Colonel in the British

703 Geneva Call Website, http://www.genevacall.org/home.htm, (accessed 25 October 2007).

704 2006 Annual Report of Geneva Call, Website, http://www.genevacall.org/resources/testi-publications/gc-annual-report-06.pdf (accessed 26 October 2007).

705 Halo Trust Website, http://www.halotrust.org/introduction.html (accessed 26 October 2007).

706 U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=38 (accessed 26 October 2007).

Army).[707] HALO now has 7,000 full time de-miners and has cleared 3.6 million land mines and UXO, and 3 million stockpiled larger caliber ordnance.[708]

b. Area of Activity

HALO specializes in the removal of the debris of war. HALO uses a One-Man-One-Lane (OMOL) system for most of its manual de-mining work, as it considers this the key to maximizing productivity. Committed to developing the use of typical agricultural tools and construction machinery in the de-mining process, HALO has 113 mechanical clearance units, including medium wheeled loaders, stone crushers, and mechanical vegetation cutters fitted to standard agricultural tractors, bulldozers and a heavy crawler crane. HALO deploys this group of equipment in support roles (vegetation cutting and the cutting of breach lanes) for manual de-mining, and in independent de-mining work, particularly in areas where heavy metal contamination negatively affects manual de-mining. HALO also deploys mine detecting dogs. Wherever HALO operates it not only conducts clearance but also mine awareness training as a complementary activity to de-mining. Survey and information distribution are also key elements of HALO's operations, with completed full surveys in Cambodia, Eritrea, Kosovo, Mozambique and Sri Lanka. In Abkhazia and Nagorno Karabakh, HALO directly supports the Mine Action Centers in lieu of the UN. HALO neither engages in lobbying activities nor undertakes commercial work.[709]

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707 Martin Revis, "Modern 'Knights' Wage War on Minefields," *Britannia.com*, 01 August 1996.

708 Remarks of Guy Willoughby at MASG Meeting, U.S. Department of State Website, http://www.state.gov/t/pm/wra/69398.htm (accessed 26 October 2007).

709 Jane's Defense Weekly Website, http://www8.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/yb/jmmc/jeod0503.htm@current&Selected=allJanes&keyword=halo&backPath=http://search.janes.com/Search&Prod_Name=JMMC& (accessed 26 October 2007).

c. Where

HALO's operations are grouped under Central Asia, Southeast Asia, Horn of Africa, Southern Africa, and the Caucasus & Balkans:[710] in Abkhazia (Georgia), Afghanistan, Angola, Cambodia, Kosovo, Mozambique, Nagorno Karabakh, Somalia and Sri Lanka.[711]

1) Afghanistan: HALO's operations in Afghanistan started in 1988[712] when they initiated the concept of humanitarian de-mining. HALO has conducted its largest de-mining activities in Afghanistan where the organization works as an executing partner of the United Nations Afghanistan New Beginnings Program (UNANBP). HALO provides work for 2,600 Afghan locals (deployed in fifty-four manual, twenty-one mechanical, sixteen BAC, thirteen technical survey, six general survey, two mine risk education, twenty-three weapons and ammunition disposal and six ammunition survey teams)[713] supervised by Afghans with the help of five refugee operations officers and an accountant. Program assets cover nine provinces and are divided between manual and mechanical clearance, survey, EOD, mine awareness training and weapons and ammunition disposal. Much of HALO's funding has come from the Governments of Britain, USA, Ireland, Norway, Germany, Japan, The Netherlands, and the E.U., supported by donations from the Association for Aid and Relief (AAR, Japan). Since 1988, HALO Afghanistan has cleared over five million items of UXO and mines. After the defeat of the Taliban in November 2001, HALO Afghanistan nearly doubled the number of its staff, mostly focusing on the abandoned Northern Alliance/Taliban front lines in the Shomali Valley, the Andarab Valley and between Kunduz and Taloqan. These areas of conflicts stayed static for four years and are thought to have seen the emplacement of an extensive network of complicated booby

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710 The Halo Trust USA Website, http://www.halousa.org/introduction.html (accessed 26 October 2007).

711 Jane's Defense Weekly Website, http://www8.janes.com.libproxy.nps.edu/Search/documentView.do?docId=/content1/janesdata/yb/jmmc/jeod0503.htm@current&Selected=allJanes&keyword=halo&backPath=http://search.janes.com/Search&Prod_Name=JMMC& (accessed 26 October 2007).

712 Tracey Begley, "Becoming Part of the Hope," *Journal Of Mine Action*, Issue 9.2, February 2006, Website, http://maic.jmu.edu/Journal/9.2/personal/begley/begley.htm (accessed 12 November 2007).

713 Landmine Monitor 2006 Report, Website http://www.icbl.org/lm/2006/afghanistan.html, (accessed 12 November 2007).

traps. More than 3.5 million people returned back to their own home towns between March 2002 and December 2005 and HALO survey, de-mining, and EOD operations were crucial to guarantee their safe return.[714] HALO received several donations during its effort against the landmine problem in Afghanistan. In 2005 alone, HALO received the following: $497,960 from German Government for manual/battle area clearance and technical survey; $622,450 from Irish Government for mine clearance; $705,832 from Japanese government for mine clearance; $1,231,883 from Dutch Government for mine clearance and MRE; $1,173,694 from Norwegian Government for mine clearance; $2,383,763 from British Government for integrated de-mining.[715]

2) Cambodia: HALO has been working in Cambodia since 1991. HALO, with four international and 1,200 national staff, sent 100 clearance teams which concentrated on the 700 mile long mine belt on the Thai-Cambodia border and on defensive positions used by Vietnamese troops.[716] The de-miners are divided into nine-man de-mining teams assisted by nine mechanical vegetation cutters and six mechanical de-mining units. HALO teams in Cambodia are financially supported by the Finnish, Japanese, American, Australian, Dutch, Irish, and British governments. Tokyo Broadcasting System also supports their work along with private donations including Rotary International.[717] Donations received by HALO in 2006 are as follows: €670,000 from Finnish Government for mine clearance; $628,150 from Irish Government for mine clearance; ¥92,329,134 from Japanese Government for mine action in northwest Cambodia; €750,913 from Dutch Government for mine clearance.[718]

3) Sri Lanka: Following a ceasefire agreement between the Liberation Tigers of Tamil Eelam (LTTE) and the Government of Sri Lanka, HALO

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[714] The Halo Trust Website, http://www.halotrust.org/afghanistan.html (accessed 26 October 2007).

[715] Landmine Monitor 2006 Report, Website http://www.icbl.org/lm/2006/afghanistan.html (accessed 12 November 2007).

[716] Landmine Monitor 2007 Report, Website http://www.icbl.org/lm/2007/cambodia (accessed 12 November 2007).

[717] The Halo Trust Website http://www.halotrust.org/cambodia.html (accessed 27 October 2007).

[718] Landmine Monitor 2007 Report, Website http://www.icbl.org/lm/2007/cambodia (accessed 12 November 2007).

started its de-mining program by concentrating on the highly mined Jaffna peninsula.[719] HALO managed to finish an extensive and thorough survey through all government controlled areas in 2002, accurately revealing the margins of dangerous areas and technical data to be used in de-mining, and prioritizing the de-mining needs in the country. Most of the mines in Jaffna peninsula are in well-structured belts laid by the former military forces. HALO, working on prioritization, considers focusing its assets on these well-structured belts. HALO trained Tamil teams how to conduct de-mining on the Jaffna Peninsula, especially in those areas where the military has no access. Also, HALO had to take over some de-mining tasks beyond the capabilities of local de-miners requiring high experience, technical equipment and techniques. These tasks were in Jaffna town, where defensive fortifications built from rubble were supported with landmines. Thus, HALO tasked thirteen armored mechanical de-mining teams, backed up by armored dump trucks and a specially modified industrial rockcrusher to perform the destruction (a technique that HALO pioneered in Kabul in the mid-nineties). HALO Sri Lanka employs 400 local staff in Jaffna. The de-miners are divided into seven-man manual de-mining sections and are supported by two mechanical vegetation cutters. Financial contributions to Halo operations in Sri Lanka were provided by the European Commission, European Community Humanitarian Aid Office (ECHO), and the governments of Japan, Finland, The Netherlands, and Britain. In addition, Swiss Foundation Pro Victimis, Swiss Agency for Development and Cooperation, International Rotary International, The Co-operative Bank, The California Community Foundation, One Sri Lanka Foundation, Julia Burke Foundation and People to People International have made additional contributions to the mine action project executed in Sri Lanka.[720] HALO received a ¥77,264,214 donation from the Japanese Government for clearance in

719 U.N. Mine Action Website, http://www.mineaction.org/country.asp?c=24 (accessed 12 November 2007).

720 The Halo Trust Website, http://www.halotrust.org/srilanka.html (accessed 27 October 2007).

Jaffna in 2006.[721] The United States Government Food For Peace program sponsored clearance of thousands of square meters in Pandattarippu and Sarasalai South in 2007 with a $4 million contribution.[722]

4) Mozambique:[723] HALO's de-mining Program in Mozambique includes the northern provinces of Zambezia, Nampula, Niassa and Cabo Delgado. The total number of de-mining personnel in Mozambique is over 450 local staff employed in twelve manual de-mining teams, eight mobile EOD/Survey teams and four mechanical de-mining teams deployed across the four provinces. HALO cleared hundreds of kilometers of roads, and in the provinces of Cabo Delgado and Niassa completed de-mining of the most of the minefields. HALO's de-mining program in Mozambique is almost over and the country will be mine-free in the very near future. Although HALO had decided to leave the country in December 2006, the plans changed and organization decided to remain for an undisclosed period due to the assessments indicating that the mine problem in the region required further attention. Donations received by HALO in 2006 are as follows: $406,557 from Japanese Government for mine clearance; $442,783 from Dutch Government for mine clearance; CHF 63,000 from Swiss Government for mine action; $1,343,052 from U.S. Government for mine clearance.[724]

5) Angola: HALO has been operating its de-mining operations since 1994,[725] especially focused on the provinces of Bie, Huambo and Benguela. The area spans both sides of the Benguela railway corridor and has the second highest population after the capital city, Luanda. HALO expanded its de-mining Program into Cuando Cubango province in 2003. At the same time, HALO assumed the responsibility of surveying the Plan Alto and Cuando Cubango provinces. HALO has been trying to clear thousands of kilometers of mine-suspect roads since 2003. HALO is the biggest de-

721 Landmine Monitor 2007 Report, Website http://www.icbl.org/lm/2007/sri_lanka (accessed 12 November 2007).

722 U.S. Embassy in Sri Lanka, Website, http://srilanka.usembassy.gov/april032007.html (accessed 27 October 2007).

723 The Halo Trust Website, http://www.halotrust.org/mozambique.html (accessed 27 October 2007).

724 Landmine Monitor 2007 Report, Website http://www.icbl.org/lm/2007/mozambique (accessed 12 November 2007).

725 David Hartley, "HALO Trust in Angola," *Journal of Mine Action*, Issue 6, August 2002, Website, http://maic.jmu.edu/Journal/6.2/focus/davidhartley/davidhartley.htm ,(accessed 12 November 2007).

mining organization working in Angola with more than 1,000 personnel.[726] HALO had eight survey/combined teams, 66 seven-lane manual de-mining sections, four road threat reduction teams, five mechanical de-mining teams, and four combined survey, marking and mine risk education teams in 2006. Donations received by HALO in 2006 are as follows: €3,099,933 from E.C. for mine clearance; €150,000 from Finnish Government for mine clearance; $659,558 from Irish Government for mine clearance; $659,558 from Dutch Government for mine clearance; $534,660 from Swiss Government for mine action and £217,658 from British Government for road verification.[727]

6) Somaliland, Puntland & Sudan: *Somaliland*: HALO's de-mining Program in Somaliland was started in 1999. HALO has eight combined manual / battle area clearance (BAC) teams, four survey/EOD teams, three double-shifted mechanical de-mining teams, and one MRE. The total number of HALO local de-mining staff is over 440 people working across Somaliland from Awdal region to Sool region. *Puntland*: HALO is also dealing with Puntland's mine contamination problem. HALO's headquarters is in Hargeisa with a small sub-location in Lascanod. HALO's focus in Puntland is de-mining mine contaminated areas along the Ethiopian border and vicinity of former military positions. The reason for this program is mainly to make safer the return of refugees from Ethiopia to Somaliland. After receiving mechanical assets in 2003, de-mining and survey efforts have considerably speeded up. HALO now assumes a multi-tiered approach to conduct de-mining in mine affected towns, using manual and BAC clearance with mechanical support. Besides, MRE teams work together with EOD teams and local liaison officers to encourage the hand-over of ammunition and mines hid by locals. *Sudan*: The Sudan HALO undertook an assessment mission to Sudan in February/March 2005, where the greatest need for humanitarian mine action is for survey and clearance of the defensive mine panels and abandoned ordnance lying close to major settlements in the south. On 15 June 2005 HALO signed a general Operating Partnership Agreement with South Sudanese national mine action NGO Sudan Landmine Response (SLR), and is now registered with the Government of South Sudan through the

[726] The Halo Trust Website, http://www.halotrust.org/anglola.html (accessed 27 October 2007).

[727] Landmine Monitor 2007 Report, Website http://www.icbl.org/lm/2007/angola (accessed 12 November 2007).

Partnership SLR-HALO Sudan. HALO sent its staff and necessary equipment to Yei County, South Sudan in September 2005. The SLR staff was trained by HALO on survey & EOD/BAC skills at the end of 2005 and SLR-HALO has been carrying out verification survey of SLR mine accident data while increasing its de-mining capacity from the start of 2006.[728]

7) Abkhazia:[729] HALO finished its thorough landmine survey in the country and set up the Abkhaz Mines Action Centre, which collects and distributes all mine-action-related information. HALO has integrated manual and mechanical de-mining, MRE, survey, and minefield marking teams located in Ochamchire and Gali. HALO also trained and equipped a mobile EOD team which deals with all UXO. HALO finished its activities in the Gali Region and alongside the Gumista River in Sukhumi. HALO cleared the area around the bridge abutments of the main railway to enable refugees to cross back to their former homes.

8) Nagorno Karabakh:[730] HALO carried out an 18-month long Program in Karabakh in 1995 and 1996 which provided a de-mining capacity for the local authorities. During this program, HALO provided local de-miners with necessary de-mining equipment and survey training. These teams carried out their de-mining operations successfully for three years. After seeing the deterioration of their work, HALO returned to Karabakh in 2000 and reinforced the locals' capacity by re-equipping them and providing additional training. HALO also set up the first mine action centre (MAC) in the region. The MAC collects information concerning landmines, UXO and safe routes, and distributes them to all stake holders, especially other NGOs in Karabakh.

9) Kosovo:[731] Until the closure of all de-mining operations in December 2001 by UNMAS, the HALO Trust carried out its humanitarian mine action efforts with over 400 staff. Since its resuming de-mining operations in May 2004, HALO

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728 The Halo Trust Website, http://www.halotrust.org/somaliland.html (accessed 27 October 2007).

729 The Halo Trust Website, http://www.halotrust.org/abkhazia.html (accessed 27 October 2007).

730 The Halo Trust Website, http://www.halotrust.org/nagornokarabakh.html (accessed 27 October 2007).

731 The Halo Trust Website, http://www.halotrust.org/kosovo.html (accessed 27 October 2007).

has cleared more than a thousand items with its seven Battle Area Clearance (BAC) and de-mining teams and one technical survey team.

9. Handicap International

a. Background

Handicap International is an international non-governmental, non-religious, non-political and non-profit organization mainly dealing with the problems of the people with disabilities. Created in France, the organization has initiated several programs in approximately sixty countries and intervened in many emergency situations.[732] After the establishment of the first organization in France in 1982, seven other divisions were formed in Belgium, Switzerland, Luxembourg, Great Britain, Germany, Canada, and the United States.[733]

b. Area of Activity

Handicap International's activities regarding landmines are: eliminating the risks associated with landmines and other ordnance, reducing the risk of landmine and UXO accidents by organizing mine-clearance work in the field, and programs for raising awareness of the risks associated with landmines. Mine Policy Units work with the respective governmental authorities and international institutions to apply diplomatic pressure for a global ban on landmines and cluster munitions.

10. International Campaign to Ban Landmines

a. Background

After several NGOs and individuals began to discuss the need to coordinate initiatives and request a ban on antipersonnel landmines simultaneously, Handicap International, Human Rights Watch, medico international, Mines Advisory Group, Physicians for Human Rights, and Vietnam Veterans of America Foundation convened in October 1992 to found the International Campaign to Ban Landmines (ICBL).[734]

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[732] Handicap International Website, http://www.handicap-international.org/ (accessed 27 October 2007).

[733] Handicap International Belgium Website, http://en.handicapinternational.be/index.php?action=rubrique&numrub=80&PHPSESSID=da6e6c5193fdd5a5dcdc8f1018ad54fe (accessed 27 October 2007).

[734] Landmine Monitor Website, http://www.icbl.org/campaign/history (accessed 27 October 2007).

In 1993, the Campaign Steering Committee, comprised of the original six organizations, was formalized and the coordinator was agreed upon. As dozens of national campaigns formed and hundreds of organizations joined the Campaign, the Steering Committee was expanded in 1996 and 1997 to reflect the growth and diversity of the Campaign. New members included:[735]

- Afghan Campaign to Ban Landmines
- Cambodia Campaign to Ban Landmines
- Kenyan Coalition against Landmines
- Rädda Barnen
- South African Campaign to Ban Landmines

In 1998, the ten existing members of the Steering Committee, now renamed the Coordination Committee, were reconfirmed and the Committee was expanded to include:

- Association to Aid Refugees, Japan
- Colombian Campaign Against Landmines
- Inter-African Union of Human Rights
- Inter-African Union of Human Rights
- Lutheran World Federation
- Norwegian People's Aid

As of 2004, thirteen organizations are represented on the Coordination Committee:

- Afghan Campaign to Ban Landmines
- Brazilian Campaign Against Landmines
- Cambodia Campaign to Ban Landmines
- Colombian Campaign to Ban Landmines
- DanChurch Aid/Lutheran World Federations
- Handicap International
- Human Rights Watch
- Italian Campaign to Ban Landmines

[735] Landmine Monitor Website, http://www.icbl.org/campaign/history (accessed 27 October 2007).

- Kenya Coalition Against Landmines
- Landmine Survivors Network
- Mines Action Canada
- Norwegian People's Aid
- Sri Lanka Campaign to Ban Landmines

Founded in 1998, the Landmine Monitor is the unique program of the International Campaign to Ban Landmines (ICBL) that observes and reports on execution of and obedience to the terms of 1997 Mine Ban Treaty.

The Landmine Monitor is not a technical confirmation system or an official inspection establishment. Rather, it is the most respected and ultimate source of information on the international landmine issue.[736] It issues numerous research products annually.

The most important product is the Landmine Monitor Annual Report, which contains reports on more than ninety mine affected countries. The Landmine Monitor network depends on more than seventy researchers from all the countries around the world.[737]

b. Area of Activity

ICBL network strives locally, nationally, regionally, and internationally for a mine free world with the intense efforts of over 1,100 human rights, de-mining, humanitarian, children's, veterans', medical, development, arms control, religious, environmental, and women's groups in more than sixty countries.[738]

11. INTERSOS - Humanitarian Aid Organization

a. Background

Established in 1992 with the active support of Italian Trade Unions, INTERSOS is a self governing, non-profit humanitarian organization devoted to helping the victims of natural disasters and armed conflicts. Its central headquarters is in Rome, in charge of planning and coordination of operations and field offices in the countries of

[736] Landmine Monitor Website, http://www.icbl.org/lm, (accessed 27 October 2007).

[737] Mines Action Canada Website, http://www.minesactioncanada.org/home/index.cfm?fuse=Monitor.Home (accessed 27 October 2007).

[738] Landmine Monitor Website, http://www.icbl.org/campaign/history (accessed 27 October 2007).

operation.[739] INTERSOS is a member of the European Coordination VOICE (Voluntary Organizations in Cooperation in Emergencies) and a member of the project SOLIDEA that is a part of the Italian Trade Unions special interrelations.[740]

b. Area of Activity

INTERSOS' activities are based on the principles of solidarity, justice, human dignity, equality of rights and opportunities, and respect for diversity and coexistence, paying special attention to the most vulnerable and unprotected.[741] The main goal of INTERSOS is to immediately respond to all types of disasters and to bring aid to the victims of armed conflict, drought, famine, and landmine explosions.[742]

c. Where

The countries of operation have been (the current interventions in italics):[743]

- Africa - *Angola*, Burundi, *Chad*, D.R. Congo, Eritrea, Ethiopia, *Kenya*, Liberia, Mozambique, Rwanda, Somalia, Sudan
- Central America - El Salvador, Honduras, Nicaragua
- Asia and Middle East - *Afghanistan*, *Pakistan*, Iran, Iraq, India, *Sri* Lanka
- Europe - Albania, *Bosnia-Herzegovina*, Chechnya, *FYRO Macedonia*, *Kosovo*, Poland, *Serbia and Montenegro*

d. Financials[744]

INTERSOS diversifies its financial resources in order to avoid dominance of any donor in funding. INTERSOS gets some of its funding from its own members' contributions and donations from individual citizens, solidarity groups, associations, joint campaigns and private firms. Most of its budget comes from official funding: the

739 INTERSOS Website, http://www.intersos.org/whoweARE.htm (accessed 28 October 2007).

740 "Intersos Profile," *Journal of Mine Action*, Website, http://maic.jmu.edu/journal/4.2/Profiles/intersos.htm, (accessed 28 October 2007).

741 Ibid.

742 Journal of Mine Action, Website, http://maic.jmu.edu/journal/4.2/Profiles/intersos.htm (accessed 28 October 2007).

743 INTERSOS Website, http://www.intersos.org/whoweare_WHEREWEARE.htm (accessed 28 October 2007).

744 INTERSOS Website, http://www.intersos.org/whoweare_FINACIAL.htm (accessed 27 October 2007).

European Union (ECHO, DG External Relations, DG Development), Italian Ministry of Foreign Affairs (DG Development Cooperation), FAO, OCHA, UNDP, UNHCR, UNICEF, UNOPS, WFP, WHO, Italian Regions, Provinces and Municipalities. Italian Trade Union Confederations have been constant INTERSOS supporters.

12. Landmine Survivors Network

a. Background

Founded by two landmine survivors in 1997, Landmine Survivors Network (LSN) is the first international organization formed by and for survivors.[745]

b. Area of Activity

LSN helped lots of families affected by landmines and provided more than 60,000 home and hospital visits, while also assisting survivors to establish their own businesses. LSN links landmine survivors to healthcare and rehabilitation services, provides social and economic reintegration programs, and works to ban landmines around the world.[746]

c. Where

LSN has regional network offices in Bosnia-Herzegovina, Colombia, El Salvador, Ethiopia, Jordan, Mozambique, and Vietnam, and its programs have reached out to survivors in forty-three of the eighty-seven most mine-affected countries and regions around the world.

1) Bosnia-Herzegovina: The first LSN Network and the first amputee peer support (during a three-day visit of Diana, Princess of Wales, in August 1997 to meet privately with the survivors and their families[747] and attract global attention to the landmine issue just prior to the September 1997 treaty negotiations in Oslo, Norway[748]) were founded in Bosnia-Herzegovina in 1997. The project was so successful that it has been added to five other mine-affected countries: El Salvador, Eritrea,

745 Landmine Survivors Network Website, http://www.landminesurvivors.org/who.php (accessed 27 October 2007).

746 Landmine Survivors Network Website, http://www.landminesurvivors.org/who.php (accessed 27 October 2007).

747 Jerry White, "Landmine Survivors Speak Out," 13, Website http://www.unidir.org/pdf/articles/pdf-art189.pdf (accessed 12 November 2007).

748 Profile of LSN by Journal of Mine Action, Fall 1999, Volume 3, No 3, Website http://maic.jmu.edu/Journal/3.3/profiles/landmine_survivors_network.htm (accessed 12 November 2007).

Ethiopia, Jordan and Mozambique.[749] After a while, LSN founded another program in Vietnam as well.[750] Since 1997, LSN-Bosnia-Herzegovina has been helping approximately 6000 survivors in the twelve most heavily mined cities in the country: Sarajevo, Tuzla, Doboj, Doboj East, Banja Luka, Mostar, Bugojno, Trbinje, Bijeljina, Velika Kladusa, Bihac, and Gorazde.[751]

2) El Salvador: LSN founded its office in El Salvador in October 2000 and began working with survivors in May 2001. LSN El Salvador currently operates in San Salvador and La Libertad, and Usulután (May 2006).[752] In 2006, LSN assisted 369 mine/ERW survivors, including seventy-seven with mobility assistance, 213 with peer support and seventy-nine with economic reintegration.[753]

3) Ethiopia: LSN founded a network office in Addis Ababa, Ethiopia in August, 1999. The Ethiopia Network founded more than twelve small public survivor groups, including three clubs exclusively for child survivors, to provide a forum for sharing common concerns related to recovery. LSN-Ethiopia supported: the Cheshire Home in Addis Ababa, the Federation for People with Disabilities, Permanent Care Home for Persons with Disabilities, Sports Federation of Persons with Disabilities, and Cheshire Services Ethiopia. [754]

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749 Whitney Tolliver, "Landmine Survivors Network Victim Assistance Programs," *Journal of Mine Action*, Issue December 2002, Website http://maic.jmu.edu/Journal/6.3/focus/tolliver/tolliver.htm , (accessed 12 November 2007).

750 U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=30 (accessed 12 November 2007).

751 Landmine Survivors Network Website, http://www.landminesurvivors.org/where_bosnia.php (accessed 27 October 2007).

752 Landmine Survivors Network Website, http://www.landminesurvivors.org/where_elsalvador.php (accessed 27 October 2007).

753 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/el_salvador (accessed 12 November 2007).

754 Landmine Survivors Network Website, http://www.landminesurvivors.org/where_ethiopia.php (accessed 27 October 2007).

13. Mines Advisory Group

a. Background

The Mines Advisory Group (MAG) is a UK Registered Charity (No.1020441).[755] MAG was set up by a former British soldier, Rae McGrath in 1989.[756] MAG began its operations in Afghanistan in 1989, as an 'advisory' group trying to persuade the international community to take necessary actions to the requirements of countries affected by the remnants of wars. MAG carried out numerous surveys and assessments, first in Afghanistan and later in Cambodia from 1989 to 1991. MAG is one of the cofounders of the internationally respected ICBL in 1992. In addition, MAG was also one of the founders of the UK Working Group on Landmines. Following its mission to northern Iraq in 1991, MAG was successful in raising funds for its first clearance program there which began in mid 1992. In the same year, MAG set up its program in Cambodia and by 1994 had started programs in Lao PDR and Angola. The organization's international headquarters is located in the city of Manchester. MAG has a staff of thirty-six at its international headquarters and 2,500 staff serving in eleven different countries. Its business-like approach met with wide approval from donors, partners and the Charity Commission of England and Wales.

b. Area of Activity

MAG tried to bring all the Mine Action NGOs together in 1997 to define the objectives and role of Humanitarian Mine Action (HMA). This initiative defined the necessity for a global, inclusive, and well-planned methodology for actual de-mining, surveying and MRE. MAG is the organization to first introduce the concept of Mine Awareness, which later became Mine Risk Education (MRE). Also, MAG has introduced other methods, such as: the multi-skilled, flexible and mobile Mine Action Teams (MATs), the use of mine detection/explosive detection dogs, a variety of manual and deep-search detectors, midi/mini flails, mechanical vegetation cutters, agricultural and plant machinery, new Explosive Ordnance Disposal (EOD) technologies and, more

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755 Journal of Mine Action, Version 4.2 June 2000, http://maic.jmu.edu/journal/4.2/Profiles/mag.htm (accessed 28 October 2007).

756 A Guide to Mine Action and Explosive Remnants of War, (Geneva: GICHD, April 2007),Website, http://www.gichd.org/fileadmin/pdf/publications/Guide-to-MA-2007/Guide-to-Mine-Action-2007.pdf (accessed 14 November 2007).

recently, the pioneering Village Assisted Clearance (VAC) teams in Laos.[757] MAG globally takes parts in de-mining and mine related activities in about twenty countries. MAG use its Community Liaison approach to integrate its activities. It also develops and helps to increase the mine affected countries' mine action capabilities.[758]

c. Where

MAG has operated in around thirty-five countries and currently has ongoing operations in Angola, Cambodia, Cyprus, Democratic Republic of Congo, Iraq, Lao PDR, Lebanon, Somalia, Sri Lanka, Sudan, and Vietnam.[759]

1) Angola: MAG's activities in Angola date back to mid-1992 with the initiation of a Community Mine Awareness poster campaign with UNHCR. Following a specialist mission by MAG to Angola in November 1993, MAG began its operations in April 1994, establishing the base in Luena, Moxico Province.[760] This still continues in operation, with twelve mine action teams, four rapid response units, five community liaison teams, four mechanical support units and a road threat risk reduction team operating in Moxico and Lunda Sul provinces.[761] These teams currently consist of 325 local staff in three locations[762]. Due to the disorder and internal conflicts, the program was halted in mid 1998.[763] After the situation stabilized, MAG returned to the country and took part in the Landmine Impact Survey (LIS) efforts which took place in 2004 and 2005. MAG also delivered MRE to people coming back to their homes after the conflicts had ended. In the following phases, MAG extended its operations in the three provinces of Moxico, Lunda Sul and Lunda Norte.[764]

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757 MAG Website, http://www.mag.org.uk/.php?s=4&p=1296 (accessed 29 October 2007).

758 U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=32 (accessed 12 November 2007).

759 MAG Website, http://www.magclearsmines.org/.php?s=4&p=606 (accessed 29 October 2007).

760 Alex Vines, *Still Killing: Landmines in Southern Africa*, 51.

761 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/angola (accessed 12 November 2007).

762 MAG Website, http://www.mag.org.uk/.php?s=4&p=649 (accessed 29 October 2007).

763 Journal of Mine Action, version 4.2, June 2000 Website, http://maic.jmu.edu/journal/4.2/Profiles/mag.htm, (accessed 29 October 2007).

764 MAG Website, http://www.mag.org.uk/.php?s=4&p=649 (accessed 29 October 2007).

2) Cambodia: Starting its presence in 1992, MAG has been operating in Cambodia in seven regions (Battambang, Pursat, Krong Pailin, Banteay Meanchey, Preah Vihear, Kampong Thom and Kampong Cham) with 464 personnel. MAG has twenty manual de-mining teams, five EOD teams[765], seven Community Liaison teams, three Technical Survey teams, three research and development teams, six mapping teams (removing reclaimed land from the national atlas of contamination), eight mechanical support teams (using Tempest mini-flails), and three mine detection dog teams (sub-contracted from the Cambodian Mine Action Centre) as of October 2007. MAG Cambodia pioneered the idea of locals' performance of de-mining by enrolling de-miners from the poorest communities across the entire country in order to gain the maximum effectiveness. MAG has a close relation with the local authorities (the Cambodian Mine Action Authority) on mine related issues, Local Mine Action Planning Units and other operators. MAG works also in partnership with a number of international mine action players, including CARE, World Vision, Church World Service (CWS) and the Lutheran World Federation (LWF) to ensure a high level of coordination.[766]

3) Democratic Republic of Congo: Started its presence in the Democratic Republic of Congo in July 2004, with a national office in Lubumbashi, Katanga province, and a liaison office in Kinshasa.[767] MAG has been working on operations on marking and de-mining mined areas[768] and lessening the threat caused by landmines through MRE. MAG trained locals in Katanga and Equateur provinces forming six teams (three community liaison and three EOD teams) to provide Mine Action services. In 2006, MAG teams carried out de-mining in South Katanga and Equateur, expanding their operations and capacity to four manual de-mining teams and four community liaison teams.[769] These teams managed to de-mine more than 87,000 sq/m of land and destroy more than 55,000 dangerous items in 2006 alone. MAG built a

765 "MAG Profile," *Journal of Mine Action*, version 4.2, June 2000, Website, http://maic.jmu.edu/journal/4.2/Profiles/mag.htm, (accessed 29 October 2007).

766 MAG Website, http://www.magclearsmines.org/.php?s=4&p=676 (accessed 29 October 2007).

767 Megan Wertz, "Democratic Republic of the Congo Profile."

768 MAG Website, http://www.mag.org.uk/.php?s=4&p=736 , (accessed 30 October 2007).

769 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/dem_congo (accessed 12 November 2007).

highly reliable coordination system with the main mine action players in the country, including local NGOs, international NGOs, and the local U.N. Mine Action Coordination Centre.[770]

4) Iraq: MAG has been operating in Iraq since 1992.[771] Since its initiation of mine action activities in Northern Iraq in 1992, MAG has de-mined about 500,000 landmines and UXOs. MAG operates with seventeen Mine Action Teams totaling more than 670[772] trained local employees.[773] Although the security constraints hinder the job, MAG remains operational in most of the north of the country. MAG coordinates closely with the National Mine Action Authority (NMAA) located in Baghdad, Local Mine Action Agency (IKMAA) located in the north, U.N. agencies, local and regional governmental authorities and other organizations operating throughout the country. MAG Iraq trained a unit of the Iraqi Army in 2005, to deal with de-mining operations in Kirkuk.[774] In 2006 MAG conducted mine action activities in Dohuk, Erbil and Sulaymaniyah governorates in addition to areas of Kirkuk, Mosul and Diyala governorates along and south of the former Green Line. Besides, MAG conducted technical training of the 4th Division, 2nd Brigade Mine Clearance Unit of the Iraqi army (formerly part of the Iraqi National Guard) in humanitarian de-mining operations; by late 2006 these teams became capable of operating semi-independently under MAG supervision.[775]

5) Laos: Started its presence in Laos in Xieng Khouang Province in 1994, MAG worked with UXO LAO from 1996 to 2000[776]. UXO Lao initiated operations in the province of Xieng Khouang in 1997 with the support of the Mines Advisory Group (UK), and now operates in nine of the most heavily impacted provinces

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770 MAG Website, http://www.mag.org.uk/.php?s=4&p=736 (accessed 30 October 2007).

771 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/iraq , (accessed 12 November 2007).

772 MAG Website, http://www.mag.org.uk/.php?s=4&p=682 (accessed 30 October 2007).

773 MAG Profile, Journal of Mine Action, version 4.2, June 2000.

774 MAG Website, http://www.mag.org.uk/.php?s=4&p=682 (accessed 30 October 2007).

775 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/iraq (accessed 12 November 2007).

776 MAG Profile, Journal of Mine Action, version 4.2, June 2000.

in the country.[777] In 2000, MAG acted in response to the Government of Laos's new policy on nationalization and transferred all its operations to the Laos national de-mining agency, UXO Lao. In 1998, MAG started to work in Saravae Province, in order to clear the UXO contamination resulting from the bombardment of the Ho Chi Minh Trail. After 2004, MAG began independent operations in the provinces of Xieng Khouang and Khammouane—but still maintains strong and productive links with UXO Lao.[778]

6) Lebanon: MAG has assisted the Operation Emirates Solidarity project by conducting a General and Technical Survey of identified targets in the Marjayo U.N.area.[779] Starting its presence in Lebanon in 2000, MAG has formed a team of 380 nationally recruited staff members. Currently, MAG concentrates on clearing UXOs scattered especially in the south of the country. MAG was contracted by UNOPS for the period from 12 January 2003 to 31 August 2003 to provide two survey teams.[780] MAG Lebanon finished a countrywide Landmine Impact Survey (LIS) in 2003. Currently a technical survey team carries out its operations in suspected contaminated areas along the "Blue Line." As of April 2007, MAG Lebanon's capacity has increased to twenty-two manual and five mechanical de-mining teams (clearing between 300,000 and 500,000 sq/m per month), three community liaison teams, one technical survey team, one reconnaissance team and one quality control/quality assurance team. The entity dealing with the landmine related problems in Lebanon is National De-mining Authority (NDO). NDO coordinates and prioritizes mine related operations, de-mining and UXO clearance and landmine awareness in Lebanon. MAG gives the utmost importance to making the maximum coordination not only with NDO but also with other key organizations like the United Nations Mine Action Coordination Centre South Lebanon (MACC SL) and The Lebanese Red Cross.[781] Funding received by MAG in 2006 is as follows: €987,190 from E.C. for emergency battle area clearance; NOK 7,199,163 from Norwegian Government

[777] Bounpheng Sisavath, "UXO Lao's Fight against Unexploded Ordnance," *Journal of Mine Action*, Issue 9.2, February 2006, Website http://maic.jmu.edu/JOURNAL/9.2/focus/sisavath/sisavath.htm , (accessed 12 November 2007).

[778] MAG Website, http://www.magclearsmines.org/.php?s=4&p=684 (accessed 30 October 2007).

[779] Mine Action Coordination center South Lebanon, Website, http://www.maccsl.org/clear_org.htm (accessed 12 November 2007).

[780] Mine Action Coordination center South Lebanon.

[781] MAG Website, http://www.magclearsmines.org/.php?s=4&p=687 (accessed 31 October 2007).

for mine clearance; £204,000 from British Government for mine clearance and $4,000,000 from U.S. Government for mine and UXO clearance.[782]

7) Sri Lanka: MAG started its presence in northern Sri Lanka in February 2002 with mine related activities such as emergency MRE, survey, and isolation of contaminated areas. Later in 2002, manual/mechanical de-mining assets and EOD assets were brought in to the program structure. Later in August 2003, MAG's activities were broadened to the district of Battacaloa, where MAG stays as the sole organization for assistance. Community Impact Surveys (112 villages in Baticaloa district) were also conducted by MAG besides its other de-mining and clearance operations between July 2003 and March 2004. As of January 2007, MAG cleared 11,592,165 sq/m of contaminated area in Sri Lanka.[783] MAG suspended de-mining activities on 22 February 2006 because of security concerns. After reevaluation of the situation in May 2006, MAG reinitiated its operations in government-held territory until November 2006, when it had completed all tasks to which it could gain access and suspended operations.[784] MAG began to use its assets again in operations in Batticola in October 2007. MAG uses one community liaison team, three manual de-mining teams and one mechanical ground preparation team consisting of two Bozena 4 mini flails.[785]

8) Sudan:[786] Starting its presence in Sudan in 1998, MAG began to provide technical support to the local NGO, Operations Save Innocent Lives (OSIL). After then MAG expanded its operations into three states in the south and two in the north, with the partnership of the Sudanese Association for Combating Landmines (JASMAR). MAG has fifteen de-mining/EOD teams, a road clearance project to support the World Food Program, and sixteen Community Liaison/MRE teams for local people living in contaminated areas. MAG finished a Landmine Impact Survey (LIS) in Eastern Equatoria, Blue Nile, Kassala, Red Sea, Gadereff, Sennar, and Northern Bahr el Ghazal

782 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/lebanon (accessed 12 November 2007).

783 MAG Website, http://www.magclearsmines.org/.php?s=4&p=690 (accessed 1 November 2007).

784 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/sri_lanka , (accessed 12 November 2007).

785 MAG Website, http://www.magclearsmines.org/.php?s=4&p=690 (accessed 1 November 2007).

786 MAG Website, http://www.magclearsmines.org/.php?s=4&p=693 (accessed 1 November 2007).

states in partnership with the Survey Action Centre. The LIS is currently being conducted in Central Equatoria, Western Bahr el Ghazal, Warrap and Lake States. MAG works in close coordination with local NGOs JASMAR and OSIL, along with the Southern Sudan De-mining Commission (SSDC) and Sudan National Mine Action Office (NMAO). MAG carries out its Emergency Mine Action Response program in Eastern Equatoria, Bahr El Jabal, Western Equatoria and Blue Nile.

9) Vietnam: MAG started its presence in Vietnam in 1999 in Quang Tri region (the initial project site is 120 hectares around a heavily mine- and ordnance-contaminated former fire-base in Qio Linh District[787]), site of the former Demilitarized Zone (DMZ) dividing Vietnam. MAG extended its activities to the next region of Quang Binh in early 2003. MAG is the largest non-military de-mining organization working in Vietnam. MAG also deals with providing mine risk reduction for the local population. The main operations of MAG are mobile EOD operations, whereby de-miners methodically work through all villages clearing all mines and UXOs. MAG conducts de-mining and clearance operations when local communities and authorities demand support. MAG also responds to emergency EOD requests. MAG has five teams in Quang Tri region and four teams in Quang Binh region[788] working with electronic sub-surface search equipment and supported by mechanical excavators.[789] MAG Vietnam gave the utmost importance to the partnerships with government authorities at both the national and local level, NGOs, and other agencies.[790] MAG, working in two provinces in 2006 with six international staff and 196 nationals, was the only organization hiring and training civilians to undertake mine/UXO clearance. MAG deployed four multi-skilled mine action teams in Quang Binh province and five in Quang Tri province.[791]

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787 MAG Profile, Journal of Mine Action, version 4.2, June 2000.

788 MAG Website, http://www.magclearsmines.org/.php?s=4&p=696 (accessed 1 November 2007).

789 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/vietnam (accessed 12 November 2007).

790 MAG Website, http://www.magclearsmines.org/.php?s=4&p=696 (accessed 1 November 2007).

791 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/vietnam (accessed 12 November 2007).

10) Azerbaijan:[792] MAG supported the national mine clearance NGO, Relief Azerbaijan, coordinated by the Azerbaijan National Agency for Mine Action. Beginning from 2000, MAG helped to assist Relief Azerbaijan according to its contract with the U.N. Office for Project Services. In mid March 2001, de-mining teams began work, especially around the national power line that runs 30 km through the Fizuli region to the town of Horadiz. MAG helped (with the joint efforts of the UNDP) with the establishment of the National Training and Quality Assurance Team on October 1, 2001, minimizing the need for international experts.[793]

11) Kosovo:[794] As soon as conflicts ceased in June 1999, MAG deployed one of its emergency response teams from Cambodia for de-mining purposes. Over the summer of 1999, MAG recruited, trained, and deployed three multi-skilled de-mining teams. The teams were located in the towns of Prizren, Podujevo and Mitrovica, and carried out different tasks such as responding to emergency requests, clearance of Serbian Army minefields, marking of bomb locations, and de-mining, especially in the vicinity of the power lines. Besides the clearance activities, MAG developed a 'Child-to-Child' MRE project, where children are trained as MRE teachers for their friends. The project had been very successful and later on integrated into the schools' curriculums. MAG was requested to take the responsibilities of the other humanitarian de-mining organizations when they suspended their operations in 1999. MAG conducted MRE in Pristina, especially for children staying in the city. MAG also set up an Information Centre in Mitrovica, where information on suspicious areas was collected and distributed to organizations and communities.

12) MAG also carried out assessments in Chad, Thailand, Eritrea, Uganda and Mauritania.

14. Norwegian People's Aid

a. Background

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792 MAG Website, http://www.magclearsmines.org/.php?s=4&p=699 (accessed 1 November 2007).

793 Emil Hasanov, "ANAMA Expands De-mining Operations Towards an Azerbaijan Free From the Impact of Mines," *Journal of Mine Action*, Issue 9.1, June 2005, Website, http://www.maic.jmu.edu/Journal/9.1/Focus/hasanov/hasanov.htm (accessed 12 November 2007).

794 MAG Website, http://www.magclearsmines.org/.php?s=4&p=704 , (accessed 1 November 2007).

Established in 1939 by the Norwegian labor movement, Norwegian People's Aid (NPA) is one of the Norway's five largest[795] NGOs.[796] NPA has been involved in mine action since 1992.[797]

b. Area of Activity

The Main activities of NAP are: rescue, first aid and public health services, helping the old and handicapped, activities on agriculture, environment, healthcare, and psycho-sociology and human rights. NPA provides emergency assistance and conflict avoidance.[798] NPA works according to the U.N. description of mine action and its mine action activities include survey and impact assessments, manual and mechanical de-mining, MRE training, mine victim assistance, capacity building and providing help for development of national de-mining capacities in the countries where it works.[799] NPA developed a very successful application of using mine dogs in de-mining activities.[800]

c. Where

NPA has ongoing humanitarian mine action operations in eleven countries in Angola, Mozambique, Ethiopia, Bosnia & Herzegovina, Croatia, Cambodia, Laos, Sri Lanka, Iraq, Iran, and Lebanon.[801]

1) Angola: NPA initiated its mine related activities in Angola in 1994 due to a request from the UN. They were tasked to survey the coastal areas and areas designated for demobilization camps and to de-mine the main inter-provincial road

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795 Stein-Erik, *Organizational Review of Norwegian People's Aid Case Study from Mozambique*, May 2007, 1, Website http://www.norad.no/items/8158/38/0516917590/3_Case%20Study%20from%20Mozambique.pdf (accessed 31 October 2007).

796 Landmine Action Website, http://www.landmineaction.org/contact.asp?item=links (accessed 31 October 2007).

797 The European Union in Humanitarian De-Mining Website, http://www.eudem.vub.ac.be/organisations/organisation.asp?org_id=12 (accessed 31 October 2007).

798 "NPA Profile," *Journal of Mine Action*, version 4.2, July 2000, Website http://maic.jmu.edu/journal/4.2/Profiles/npa.htm (accessed 31 October 2007).

799 The European Union in Humanitarian De-Mining Website.

800 Journal of Mine Action, version 4.2, July 2000, Website http://maic.jmu.edu/journal/4.2/Profiles/npa.htm (accessed 31 October 2007).

801 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/ (accessed 31 October 2007).

link Luanda-Malanje.[802] Operation in the region began in February 1995 after getting necessary permission from the Ministry of Defense and Ministry of Cooperation.[803] NPA has three mine action bases in Malanje, Luena, and Lubango. NPA has a capacity of 500 national staff[804], eight international staff, 250 manual de-miners, mine detection dogs and the REST system (Remote Explosive Scent Tracing) with air sample collection and stationary analysis, a mechanical program with five Aardvark and two Hydrema flailing machines and four Casspir mine proof vehicles[805] (after phasing out dogs and introducing Casspir armored vehicles in all bases for area reduction and verification in 2004)[806], three survey teams with task impact assessments capacity, three EOD teams for UXO disposal, a small MRE capacity, logistical, medical and communication staff, and a management structure to support the operations.[807] Since the inception of the program, NPA has been successful on several counts: the number of square meters cleared per year has increased dramatically, cost efficiency has improved, and efforts to achieve socio-economic objectives have been strengthened through the use of aid money.[808]

2) Bosnia-Herzegovina: After the Dayton Peace Agreement was signed, NPA initiated its mine action program in Bosnia-Herzegovina in the beginning of 1996. The first de-mining program was initiated in the Tuzla region (North-East of Sarajevo) in order to provide safe areas for Internally Displaced People (IDP)'s and refugees' return to their own land. By the help of these efforts, buildings and infrastructure were cleared, so that the houses could be reconstructed and the refugees and IDPs returned to their homes. In 1998, the new focus area became the Sarajevo Canton. Today NPA carries out survey and de-mining operations in Sarajevo, Tuzla,

802 Angola Profile, NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Angola/ (accessed 31 October 2007).

803 Vines, *Still Killing: Landmines in Southern Africa*, 53.

804 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/angola (accessed 13 November 2007).

805 Angola Profile, NPA Website.

806 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/angola (accessed 13 November 2007).

807 Angola Profile, NPA Website.

808 Mid-term Review of the Angola Program of Norwegian People's Aid, by GICHD, V., Website, http://www.gichd.org/links-information-database/research-and-evaluation-reports/evaluated-organisation/?tx_gichd_pi1evaluation_id=205 (accessed 13 November 2007).

Brcko, and Mostar. NPA has a capacity of 138 national staff, three international staff, one Technical Survey Team, seven manual de-mining teams, one Tempest mini-flail, one MineCat medium sized flail, one Minelifta heavy-flail, thirteen operational mine detection dogs, two EOD teams, and six medical teams. [809] In 2006, NPA mainly focused on provision of land for housing, power infrastructure, agriculture, roads and water systems.[810]

3) Cambodia: NPA's presence in Cambodia dates from 1992 with the first de-miners deployed to the North-West under U.N. auspices. Since 1993, NPA has provided technical assistance to the Cambodian Mine Action Center (CMAC). In 1997, NPA was requested by the local authorities to assist in the resettlement of 5,000 displaced families on mine-free and de-mined land in the contaminated region of Beantey Meanchey. Integrated de-mining activities and community development projects were executed jointly in partnership with CMAC and the Ministry of Rural Development. Since March 2003, NPA has been contracted by CMAC to support the development of a mine detection dog (MDD) capacity; in 2004, NPA contracted two technical advisors and a national consultant to ensure the effective integration of the MDD program within CMAC's work.[811] NPA provides financial support to the CMAC de-mining Unit 1 in the Beantey Meanchey region. This project is also related to NPA's effort to contribute to better priorities in mine clearance and a fair distribution of land.[812]

4) **Croatia**:[813] NPA initiated its mine related activities in Croatia in the fall of 2001. The first base of the mine action program in the country was the town of Benkovac in Zadar County. The program focuses on providing an environment which facilitates the resumption of routine life conditions, as well as eliminating the mine risk

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809 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Bosnia_and_Herzegovina/ (accessed 31 October 2007).

810 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/bosnia (accessed 13 November 2007).

811 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/cambodia (accessed 13 November 2007).

812 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Cambodia/ (accessed 1 November 2007).

813 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Croatia/ (accessed 1 November 2007).

for the present and returning people in contaminated areas within NPA's areas of responsibility. NPA carries out surveys and de-mining activities in Zadar and Sibenik counties, and in Slavonia. NPA has a capacity of forty-four local employees, one general survey team carrying out task impact assessment, community liaison and MRE, two technical survey teams, two manual de-mining teams, two mechanical de-mining teams (one MineCat medium sized flail and one MV-4 mini-flail), one mine detecting dog team, and two medical teams.

5) Ethiopia:[814] NPA initiated its mine related activities in Ethiopia in December 2001 due to a subcontract awarded by the Survey Action Centre (SAC) to carry out a national Landmine Impact Survey (LIS) in Ethiopia. NPA finished the survey in March 2004. NPA had a capacity of 175 local and three international employees. NPA is considering enhancing capacity by constructing a MDD training center.[815]

6) Iran:[816] NPA initiated its mine related activities in Iran in 2001, due to a request from the Norwegian corporation Norsk Hydro, which was doing seismic explorations in Western Iran. NPA gave technical support service by deploying eighteen technical advisors to the operation. NPA provided training and quality control of survey and de-mining work conducted in the Anaran district. Although the seismic operation is over, NPA's advisory presence in Iran was reduced from fourteen to two in 2002, due to disagreement with Norsk Hydro.[817] This left the operation with just two technical advisors, to control road and campsite constructions for mines and UXO threat.

7) Iraq: NPA initiated its mine related activities in Northern Iraq in 1995. At the beginning of the program, the main goal was de-mining the roads and clearing all the UXOs in order to facilitate the return of the local IDPs, especially the ones living in Mawat sub-district in the district of Sharbazher, Suleymaniyah

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814 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Ethiopia/ (accessed 1 November 2007).

815 Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/ethiopia (accessed 13 November 2007) .

816 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Iran/, (accessed 1 November 2007).

817 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/iran (accessed 13 November 2007).

Governorate. NPA has 130 local employees in Northern Iraq. After the U.S. invasion of the country, MAP expanded its operations and moved south to Khanaquin and Diala.[818] NPA initiated its de-mining operation due to the contract awarded by the U.S. government.[819] It began an Emergency Mine Action Program in Baghdad in July 2003, and has been clearing large ammunition stockpiles in and around Baghdad. The NPA EOD teams are composed of employees of the Iraqi Civil Defense in Baghdad and local employees. These teams have been handed over to the national Iraqi de-mining organization, IMCO. Due to security concerns, NPA suspended its activities in Baghdad in June 2004.

8) Laos: NPA initiated its mine related activities in Laos in 1997 by providing technical assistance to the national organization UXO LAO. NPA deployed EOD, MRE and Finance specialists in the Southern regions of Sekong and Attapeu.

9) Lebanon: NPA initiated its Landmine Victim Assistance Program in Lebanon in the beginning of 2001 in partnership with three local partners and in consultation with the National De-mining Office (NDO).[820] NPA began clearing cluster bomb strike sites with three BAC teams and one EOD team, with the financial support of the Government of Norway.[821]

10) Mozambique:[822] NPA initiated its mine related activities in Mozambique in 1993 to facilitate safe return of refugees from neighboring countries after conflicts were over. NPA's mine related activities in Mozambique are located in three central regions: Tête, Manica, and Sofala. NPA has a capacity of 500 local employees in the country, one survey team, two Casspirs with steel-wheels (used in ground preparation

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818 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Iraq/ (accessed 1 November 2007).

819 The U.S. Humanitarian Mine Action Program in Iraq, Journal of Mine Action, Issue 7.2, August 2003, Website http://maic.jmu.edu/JOURNAL/7.2/features/lange/lange.htm (accessed 13 November 2007).

820 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Lebanon/ (accessed 1 November 2007).

821 Mine Action Coordination center South Lebanon, Website, http://www.maccsl.org/donors%2006-07.htm (accessed 12 November 2007).

822 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Mozambique/ (accessed 1 November 2007).

and risk reduction), six manual teams, eleven operational Mine Detection Dogs, support elements such as paramedical services and logistics.

11) Sri Lanka:[823] NPA initiated its mine related activities in Sri Lanka in 2002. The focus of the efforts was to assist the de-mining activities in Vanni region. There were other mine action players in the region, such as the Mines Advisory Group (MAG) with which NPA cooperated in order to provide funds and technical advice to the operations. The Tamils Rehabilitation Organization (TRO) is the executive bureau with general executive and operational authority over the operations. Conduct of actual de-mining operations is the responsibility of the Humanitarian De-mining Unit (HDU), a branch of TRO. HDU coordinates directly with NPA and MAG on technical issues. As for the cooperation between MAG and NPA, MAG is in charge of the survey, mapping and marking, MRE, and EOD while NPA is in charge of manual de-mining and management training. NPA has a capacity of 600 manual de-miners and four international staff.

12) Sudan:[824] NPA has been consistently conducting its mine related activities in southern Sudan since 1986. Focus areas of NPA are food security, health care, development of local communities, and various training programs for the local population. It was after the conflicts were stopped in the country that NPA started a mine action program in South Sudan (in Yei in the province of Western Equatoria) in March 2004. Twelve international employees signed up and trained about 200 Sudanese in different positions in the program. The program comprised of three manual de-mining teams, two survey teams, one rapid response team (EOD), and one mechanical de-mining team with a MineWolf flail/tiller machine.

13) Thailand:[825] NPA initiated its mine related activities in Thailand in 1999 due to the fact that they were appointed by the Survey Action Centre (SAC)—a consortium of mine action NGOs, among them the Vietnam Veterans of

[823] NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Sri_Lanka/ ,(accessed 1 November 2007).

[824] NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Sudan/ ,(accessed 1 November 2007).

[825] NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Completed_projects/ (accessed 1 November 2007).

America Foundation (VVAF), Handicap International, NPA and the Mines Advisory Group—to conduct a Landmine Impact Survey in Thailand. NPA began to conduct a broad survey of the country in May 2000, especially along its contaminated border lines with Laos, Cambodia, Malaysia, and Burma/Myanmar, with the partnership of Thailand Mine Action Centre (TMAC). NPA finished its survey in spring 2000. The results of the survey revealed that the actual contamination in the country was much more than it was thought to have been.

14) Kosovo:[826] NPA initiated its mine related activities in Kosovo In 1999, due to a request from the UN. The initial capacity deployed to area (thirty-two de-miners, two mine detection dogs, paramedics and specially trained House Clearance personnel with EOD experience) was borrowed from the NPA Mine Action program in Bosnia and Herzegovina. The initial aim was to eliminate or at least decrease the risk for mine and unexploded ordnance (UXO), especially for the returning refugees. NPA terminated its operations in the country in November 2001, due to the UNMICC Exit Strategy, formulated by the UN.

15) Western Sahara: The NPA MRE program in Western Sahara aimed to assist the safe return of refugees in 1998. First activities were started in refugee camps in Algeria to ensure the complete awareness of mine contamination and mine related threats by the refugees. NPA trained about forty locals on MRE and awareness campaigns and conducted MRE in the four largest refugee camps. After conducting the MRE training in all the camps by May 2000, nearly all refugees in these camps had received mine awareness and the project was terminated.

15. Veterans for America Foundation (VFA)

a. Background

Founded by a committed group of Vietnam veterans (co-founders Bobby Muller and John Terzano) in 1980, the Vietnam Veterans of America Foundation (VVAF) is an international humanitarian organization that deals with the problems caused by landmines.[827] Vietnam Veterans of America Foundation (VVAF) was renamed

826 NPA Website, http://www.npaid.org/www/English/World/Land_mines/NPA_Mine_Action/Portfolio/Completed_projects/ (accessed 1 November 2007).

827 UN Mine Action Website, http://mineaction.org/org.asp?o=48 (accessed 1 November 2007).

Veterans for America after operating for 26 years. The efforts of VFA for a global landmine ban worked and the worldwide anti-landmine campaign, which VFA also took part in as one of the major players, grew into the International Campaign to Ban Landmines in 1991 and then led to the Ottawa Treaty banning antipersonnel landmines and then to the Nobel Peace Prize, in 1997. VFA's international humanitarian programs help innocent civilians of conflicts and clashes in fourteen war-torn countries by making therapy services available and determining de-mining priorities.[828]

b. Area of Activity

VFA mainly carries out mine action and rehabilitation projects for landmine victims.[829] VFA has donated hundreds of thousands of prosthetic limbs in mine affected countries globally. The foundation uses a "Concerts for a Landmine Free World" campaign in order for some of the most distinguished voices and finest singers-songwriters of the time to share songs and stories and help raise public awareness about the global landmine tragedy. Most of the contributing artists travel overseas to tour VFA rehabilitation clinics, meet with international staff and clinic patients. Programs of VFA also give job training and employment to the landmine victims.[830]

c. Where

The VFA operated programs in Angola, Cambodia, El Salvador, Kosovo, Sierra Leone, and Vietnam.

E. BACKGROUND INFORMATION ABOUT COMMERCIAL COMPANIES

A high number of companies have been founded all around the world in order to fill the gap between the demand and supply for the de-mining and other mine related problems.

It was after the end of the 1991 Gulf war that Kuwait was de-mined and cleared of UXOs by a number of commercial de-mining companies who were contracted for de-mining for the first time[831]. Subsequently, a number of commercial companies, such as

828 Veterans for America Website, http://72.34.55.84/~vfa999/our-programs/landmine/ (accessed 1 November 2007).

829 UN Mine Action Website, http://mineaction.org/org.asp?o=48 (accessed 1 November 2007).

830 Veterans for America Website.

831 Keeley, *Understanding Landmines and Mine Action,* 18.

BACTEC, European Landmine Solutions, Mechem, Mine-Tech and Royal Ordnance have played a significant role in humanitarian de-mining.[832]

Background information about some of the Major commercial de-mining companies are listed below:

1. ARMORGROUP Mine Action

a. Background

The company was originally established after the DSL (A British firm founded by General Sir David RAMSBOTHAM in 1981) was purchased by an American firm called ARMOR holding in 1997 and became ArmorGroup[833]. ArmorGroup is an international supplier of Protective Security, Security Training and Weapons Reduction & Mine Clearance services to first world national governments, major international inter-governmental organizations and multinational corporations. The corporation's headquarters is in London and it employs over 9,000 personnel in more than forty-five countries, with operations across Europe, North and South America, Russia & CIS, Africa, Middle East and Asia Pacific.[834] Most of its staff serving in the regional offices are of British Military background (using knowledge gained from their service in élite British military units such as the Special Air Service and the Gurkhas[835]) who employ predominantly local personnel. [836]

b. Area of Activity

While the main activities of ArmorGroup's Weapons Reduction and Mine Action services are Clearance and Detection, Mine Risk Education and Survey[837], it mainly deals with:

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832 *Guide to Mine Action and Explosive Remnants of War*, GICHD, 27.

833 Deborah D. Avant, *The Market for Force: The Consequences of Privatizing Security*, (New York: Cambridge University Press, 2005), 9.

834 U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=116, (accessed 13 November 2007).

835 An Vranckx, *Private security services in the Colombian context, International Peace Information Service*, 5, Website, http://ipisresearch.be/download.php?id=59 (accessed 13 November 2007).

836 Avant, The Consequences of Privatizing Security, 9.

837 Global Mine Action registry of James Madison University, Website http://maic.jmu.edu/gmar/details.asp?OID=1440 (accessed 13 November 2007).

- Battlefield area clearance
- EOD and Improvised Explosive Device (IED) disposal
- Ammunition stockpile destruction
- The removal and abatement of small arms and light weapons (SALW)[838]

c. Where

EUROPE

1) Cyprus (2004): Following a tendering process, ArmorGroup was awarded a contract to carry out clearance of National Guard minefields in the buffer zone dividing the Turkish Republic of Northern Cyprus and Greek Cypriot Administration side in the south[839], using manual methods and dogs in 2004.[840] Services have included:

- General mine action and impact assessments
- Technical survey
- De-mining and marking
- EOD activities, including the clearance of buildings
- ArmorGroup was also contracted to provide an emergency response service incase of any mine or UXO related incidents[841]

As of April 2005, ArmorGroup had forty-three operational staff in Cyprus, including twenty-seven de-miners, four medical staff and two dog handlers.[842]

2) Bosnia and Herzegovina, (since 1996): ArmorGroup executed MRE, provided project equipment and conducted minefield site supervision and de-mining services for ITF, the EC, the World Bank and U.N. agencies.

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838 ArmorGroup Website, http://www.armorgroup.com/services/servicesmineaction/ (accessed 1 November 2007).

839 ArmorGroup Website, http://www.armorgroup.com/services/servicesmineaction/mineactionexperience/locationseurope/ (accessed 1 November 2007).

840 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/cyprus.html (accessed 13 November 2007).

841 ArmorGroup Website, http://www.armorgroup.com/services/servicesmineaction/mineactionexperience/locationseurope/ (accessed 1 November 2007).

842 Landmine Monitor 2005 Report, Website, http://www.icbl.org/lm/2005/cyprus.html (accessed 13 November 2007).

3) Kosovo (1999–2001): ArmorGroup was appointed as Lead Agency in southwestern Kosovo to coordinate all kinds of mine action activities in the region. All the activities were performed in cooperation with the U.N. and other mine action organizations. The program in this country was funded by the European Union and British Government. The company used MDDs, mechanical ground preparation and a combination of rapid response EOD and survey teams backed up by manual de-mining teams. ArmorGroup also provided training for local EOD personnel. Armor Group was contracted by UNOPS, to provide quality assurance services on BACTEC and LAF. In January 2004, Armor Group and LAF completed a review of National Technical Standards and Guidelines (TSGs), evaluating operational methodology and altering it where needed.

4) Croatia (2001 – 2002): Company conducted several programs:

- Assisted Croatian Mine Action Centre and the World Bank to de-mine the roads in the area of Zadar and Sibenik
- Supplied MDDs and deep exploration teams for a construction firm while building a new highway linking the north of the country to the south
- Carried out technical and impact surveys and de-mining in Eastern Slovonia

AFRICA[843]

1) Sudan (since 2006): One of the ArmorGroup Mine Action's largest teams with almost 200 local de-miners, surveyors and support personnel, has been carrying out a land mine survey and UXO clearance program in support of the UN's mission in southern Sudan. For this task in support of the UN's mission in the southern Sudanese areas of Juba, Wau and Malakal, the company was awarded a contract worth about $7 million by the United Nations Office for Project Services ("UNOPS") In July 2006.[844]

2) Mozambique (since 1995): ArmorGroup Mine Action has been contracted to conduct projects for commercial firms and international organizations to:

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843 ArmorGroup Website, http://www.armorgroup.com/services/servicesmineaction/mineactionexperience/locationsafrica/ (accessed 1 November 2007).

844 Landmine Monitor 2007 Report, Website, http://www.icbl.org/lm/2007/sudan, (accessed 13 November 2007).

- Conduct de-mining around the villages, bridges, power lines and roads vital for the restoration of the local infrastructure and economy
- Supply technical and logistical assistance to the U.N. Accelerated De-mining Program and to the National De-mining Institute[845]
- U.S. government contracted ($1,000,568) the company in 2006 for provision of training and support for Forças armadas de Moçambique (FADM)[846]

3) Ethiopia (2004–2005): ArmorGroup provided manual, mechanical de-mining teams and MDD capabilities, in assistance to the Ethiopian Mine Action Program to conduct technical and impact surveys and carry out quality controls on areas de-mined by other manual and/or mechanical de-mining teams.

4) Angola (1995): Landmine and UXO clearance contracts awarded by sponsor governments and commercial customers.

MIDDLE EAST[847]

1) Iraq (since 2003): ArmorGroup Mine Action teams carried out the following tasks for government and commercial customers conducting reconstruction projects at locations such as airfields, military installations, pipeline routes, ports, power-lines and water treatment plants:

- General mine/ UXO assessments
- Technical and impact surveys
- Battle area clearance
- De-mining, UXO clearance
- EOD and IEDD support
- Ammunition stockpile destruction
- MRE

Over a 14-month period, eighteen million items of ordnance were destroyed. The company also provided Explosive Detection Dog Teams for access checkpoint control to prevent explosive devices and weapons being brought into military

845 ArmorGroup Website, http://www.armorgroup.com/services/servicesmineaction/mineactionexperience/locationsafrica/ (accessed 1 November 2007).

846 *Landmine Monitor* 2007 Report, Website, http://www.icbl.org/lm/2007/sudan, (accessed 13 November 2007).

847 ArmorGroup Website, http://www.armorgroup.com/services/servicesmineaction/mineactionexperience/locationsmiddleeast/ (accessed 2 November 2007).

and reconstruction contractors' containment areas. ArmorGroup also helps to train the Iraqi police. The contract for this service is worth more than £250,000.[848]

1) Lebanon (2002–2007): The company conducted numerous tasks awarded by the UN's Mine Action Coordination Centre South Lebanon as Battle Area Clearance task, sponsored by the UAE (last contract awarded was on 25 September 2006, when company was awarded a $5.6 million contract by the United Arab Emirates (UAE) to carry out a battle area clearance program in support of the U.N. Humanitarian Aid Relief efforts in South Lebanon) concentrating on the UXO disposal and Quality Assurance and Quality Control of contracts awarded to other de-mining contractors.[849] But this contract was not the first contract the company was awarded in the country. ArmorGroup had prior experience of UAE-funded mine action programs in Lebanon since 1994.[850]

AMERICAS[851]

1) Colombia (2004): The company conducted the following mine activities:

- Mine impact assessments
- Evaluation of national mine action structure
- Determining training requirements for national mine action personnel
- Organization of MRE

848 Christopher Kinsey, *Private Security Companies: Agents of Democracy or Simply Mercenaries?* (Heidelberg: Verlag, 2007), 16, Website, http://64.233.179.104/scholar?num=100&hl=en&lr=&as_qdr=all&q=cache:i3rVQBskockJ:www.defac.ac.uk/publications/Kinsey.pdf+colombia+ArmorGroup, (accessed 13 November 2007).

849 Armorgroup press release, 25 September 2006,Website, http://www.armorgroup.com/mediacentre/newsarchive/?id=3427 (accessed 2 November 2007).

850 Financial Thisismoney Website, http://investing.thisismoney.co.uk/cgi-bin/digitalcorporate/thisismoney/security.cgi?csi=109238&action=news&story_id=826557&rns=1 (accessed 13 November 2007).

851 ArmorGroup Website, http://www.armorgroup.com/services/servicesmineaction/mineactionexperience/locationsamericas/ (accessed 2 November 2007).

ASIA PACIFIC[852]

1) Cambodia (2002–2004): At the beginning, ArmorGroup assisted Cambodian Mine Action Authority to write Cambodian Mine Action Standards. Later, further contracts were awarded to the firm by the E.U. to:

- Assess the influence of the technical support provided to the agencies to develop capabilities within Cambodian national organizations
- Evaluate mine action sector in Cambodia, including its funding
- Report back to the EU on findings

2) Sakhalin Island (Russia) (since 2001): Company got contracted by a variety of big oil and gas companies on the island for following tasks

- Impact and risk evaluation of UXOs;
- Providing national personnel with MRE
- Quality assurance and quality control of national de-mining companies
- Underwater EOD survey and de-mining
- Helping for development of Sakhalin Energy Mine Action Standards

2. BACTEC International Limited

a. Background

BACTEC was founded in 1991 by Guy Lucas to provide risk mitigation services for UXO clearance, de-mining, and worldwide EOD initiatives.[853] According to e mail[854] received from Joan Porter on behalf of Guy Lucas on 23 May 2007, background on the company and its founder are summarized as:

> I established the Company in 1991, having completed my first career as an Officer in the Royal Engineers where I was trained as an EOD operator and commanded the Royal Engineers EOD squadron in the Falklands war. Subsequently, I set up and ran the project for the clearance of the UK sector of Kuwait as the Director of Operations. This project saw the clearance of over 500,000 mines. I later set up the U.N. Central Mine Action Office (later to become the U.N.MACC in Luanda) in Angola in 1994.

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852 ArmorGroup Website, http://www.armorgroup.com/services/servicesmineaction/mineactionexperience/locationsasiapacific/ (accessed 2 November 2007).

853 BACTEC Website, http://www.bactec.com/about/index.htm (accessed 2 November 2007).

854 E-mail received from Joan Porter on behalf of Guy Lucas on 23 May 2007.

The employee situation and their backgrounds are explained in the e-mail[855] received on behalf of Guy Lucas:

> Currently we have over 500 employees worldwide. The vast majority are ex servicemen trained and qualified as EOD operators/de-miners by their respective military schools. Those who were not trained by the military have been trained by BACTEC and all trainees have subsequently been accredited by the local authority in the theatre of operation. All field staffs are given mandatory update/refresher training before being deployed on operations. We have been accredited by the U.N.MACC in Sarajevo, Pristina and Southern Lebanon. All work is carried out to IMAS local TSG and BACTEC project specific SOPs. No potential EOD operators/de-miners are employed/deployed until trained and evaluated by BACTEC. CVs give an indication of capability and experience whereas training identifies actual capability. Evaluation is a combination of documentary evidence and practical ability. Theatre specific Techniques/Procedures and Standards determine the training required for each project combined with the threat. Therefore BACTEC assesses the skill-set and training required on a case by case basis and recruits and trains appropriate field staff. As stated above, we also prepare project specific SOPs for each contract/project which take into account specific requirements for training and equipment

b. Area of Activity

BACTEC's policy is to recruit and train as many local personnel as possible to deal with de-mining duties.[856] In 2006 alone, BACTEC carried out MRE, EOD, Mine Action, Consultancy, and Training operations, and cleared over 2,5000,000 square meters of mines, booby traps and sub-munitions.[857] BACTEC normally deploys Manual clearance teams (MCT), Mine detection dog teams (MDD), Mechanical systems (MECH) for each de-mining operation.[858] The general range of services provided by the company includes the following:[859]

- EOD/Mine Action Consultancy
- Threat Assessments and Risk Assessments
- Non intrusive and intrusive survey on land and underwater

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855 Ibid.

856 BACTEC Website, http://www.bactec.com/post/training.htm (accessed 2 November 2007).

857 E-mail received from Joan Porter.

858 BACTEC Website, http://www.bactec.com/post/, (accessed 2 November 2007).

859 E-mail received from Joan Porter.

- Target investigation and clearance on land and underwater
- Level 1 and 2 (Impact and Technical) surveys
- Landmine Clearance
- Post conflict clearance
- Small ammunition disposal
- Quality Assurance
- Rapid Response EOD teams
- Land Quality Statements
- Explosive Ordnance safety and Awareness Briefings
- Mines Risk Education
- Training Area/Range Clearance
- Demilitarization
- Project Management

c. Where

BACTEC undertook significant projects for several governments in several countries.[860] These projects were conducted in twenty-eight countries and contracted by UNOPS, UNDP, British Government, Belgian Government, Taiwanese Government, major oil companies, seismic companies, and international construction companies.[861] The company has offices in Australia and Mozambique, and branch offices in Libya, Lebanon, and Phnom Penh/Cambodia.

1) Lebanon: The first contract, for Emergency Response EOD and BAC Support, was awarded by UNOPS New York. Project has been conducted since August 2006. In this project BACTEC provides five EOD and seven BAC teams to carry out clearance tasks in South Lebanon after the 2006 conflict.

The second contract, to Support and Rebuild Lebanon Mine and Cluster Bomb Clearance, was awarded by UAE Embassy Lebanon to undertake clearance

860 BACTEC Website, http://www.bactec.com/post/index.htm , (accessed 2 November 2007).

861 E-mail received from Joan Porter.

of booby traps and mines for Operation Emirates Solidarity (OES)[862]. The project has been conducted since October 2006. BACTEC has been clearing Area 6 of South Lebanon of Mines and Booby traps.

2) Libya: The company has been conducting Seismic Survey Support operation (Level 1 Impact and Level 2 Technical Survey in support of seismic works) in Libya on behalf of Shell since November 2005. BACTEC is the official firm appointed by Shell to provide land mine and exploded ordnance detection operations in support of the seismic acquisition program in one of Shell's five blocks in the Sirte Basin.[863]

3) Mozambique: The first contract, carrying out a Level 1 impact survey, was awarded by the Brazilian Mining Company, CVRD, after winning a concession to explore for coal in Mozambique. The operation was conducted in November 2005.

The second contract was awarded by WBHO (South African construction company) and continued between May-August 2004. The work carried out

was a Level 1 survey/verification/Mine clearance of approximately 90 km of Zandamela-Maxixe road verges, borrow pits and camps using survey teams, MCT, MDD and mechanical teams.

The third contract was awarded by road contractor Conduril[864] and continued between May-November 2004. Work carried out was for a Level 1 survey/verification/mine clearance of approximately 70 km of road verges, borrow pits and camps using survey teams, MCT, MDD and mechanical teams.

The fourth contract was awarded by WBHO for June-October 2004. Work carried out was for de-mining of known/suspected Mined Areas and de-

862 Lebanon Mine Action Coordination Center Website, http://www.maccsl.org/clear_org.htm (accessed 14 November 2007).

863 Shell in the Middle East Website, http://www.shell-me.com/english/oct2006/susdev.htm (accessed 14 November 2007).

864 Conduril web, http://www.conduril.pt/Mocambique.aspx , (accessed 2 November 2007).

mining support to a gas pipeline right of way between Ressano Garcia and Matola. The work included Level 1 survey/verification/de-mining using survey teams, MCT, MDD and mechanical teams.

The fifth contract was awarded by Sinohydro, a Chinese construction company, through the World Bank[865] and continued between June-Aug 2004. Work carried out was for Level 1 survey/verification/mine clearance of approximately 100 km of road verges, borrow pits and camps using survey teams, MCT, MDD and mechanical teams.

4) Belgium: A contract to clear the World War II beaches of Belgium from all UXOs and landmines was awarded by European Union/Local Communities in 1997. Survey and clearance of munitions from coastal locations, Calais, Depanne, Oostende and Bredene. Typical clearance tasks include clearance of First World War toxic munitions and clearance of the Second World War Atlantic Wall obstacle belt. The obstacle belt includes various munitions, including depth charges, landmines, large projectiles (270 mm), mortars, sea mines, aerial bombs, and grenades. A total of 2500 items have been destroyed/removed to date. Total area surveyed and cleared to date in excess of 1,550,000 sqm.

5) Indonesia: The contract was awarded by BP Exploration Sunbury and the Indonesian Army and carried out between 2003 and 2005. The purpose of the project was to carry out threat assessment, technical UXO Survey, and UXO Investigation, based on requests from the Executive Body of Oil and Gas Upstream Operation (BPMIGAS) in Teluk Bintuni District, Papua Province. To conduct, execute and manage the disposal of World War II bombs leftovers (fifty-five bombs) located in BABO Sub-district, Teluk Bintuni District, Papua Province, BACTEC used a Hydro Abrasive Cutter.

6) Southern Lebanon: The first contract was the first phase of a $50 million contract awarded by the United Arab Emirates (Operation Emirates Solidarity Phase-I) and work was finished between November 2001 and April 2002. The

865 World Bank Website, http://web.worldbank.org/external/projects/main?menuPK=228424&theSitePK=40941&PK=64283627&piPK=73230&Projectid=P001785 (accessed 2 November 2007).

purpose of the project was to clear mines and unexploded ordnance from the former occupied zone of Southern Lebanon. BACTEC in the first instance provided three fully equipped Explosive Ordnance Disposal (EOD) teams to provide a rapid response to requests for assistance from the local population who uncover mines/UXO, investigate over 288 booby traps scattered throughout the project area, obtain details of the minefields and sub-munitions, Level 1 and Level 2 Survey and Mines Awareness. The United Arab Emirates (UAE) was the sponsor for the project, which was undertaken under the auspices of the UAE in collaboration with the Lebanese National De-mining Office (NDO).

The second contract serviced the second phase of a $50 million contract awarded by United Arab Emirates (Operation Emirates Solidarity Phase-II) and work was finished between November and May 2002, and in June 2003. The purpose of the project was to clear mines and unexploded ordnance from the former occupied zone of Southern Lebanon. BACTEC provided ten MCT teams, seven MDD teams, and five Mechanical teams. The project involved the clearance of approximately 1.5 million m² and the destruction of over 8800 items. BACTEC undertook training of local personnel as Battle Area Clearance (BAC) searchers and de-miners, together with providing training courses to UAE military personnel. The United Arab Emirates (UAE) was the sponsor for the project, which was undertaken under the auspices of the UAE in collaboration with the Lebanese National De-mining Office (NDO).

The third project was the third phase of a $50 million contract awarded by United Arab Emirates (Operation Emirates Solidarity Phase-III) and work was finished between July 2003 and May 2004. The purpose of the project was to clear mines and unexploded ordnance from the former occupied zone of Southern Lebanon. BACTEC provided ten MCT teams, seven MDD teams, and five Mechanical teams. To date the project has involved the clearance of approx 300,000 m² and the destruction of over 20,000 items. BACTEC has undertaken the training of local personnel as BAC searchers and de-miners together with providing training courses to UAE military personnel. The United Arab Emirates (UAE) is the sponsor for the project, undertaken under the auspices of the UAE in collaboration with the Lebanese National De-mining Office (NDO).

7) Bosnia Herzegovina: A contract awarded by the European Commission and was accomplished between 1996 and 1998. The purpose of the project was to train and equip Bosnian, Croatian, and Serbian personnel in EOD Procedures to facilitate an emergency response capability to deal with all forms of ordnance, including mines. Training of nine Rapid Response EOD teams was followed by their supervised deployment. Training included Level 1 and 2 Survey, mine clearance and UXO disposal as well as Mine Awareness Training to enable the team to educate the local population in the areas of deployment.

8) Kosovo: A contract awarded by the Department for International Development (DFID UK Gov.) was finished between July 1999 and December 2000. The purpose of the project was to provide rapid response Explosive Ordnance Disposal (EOD) and Cluster Munition Clearance Teams in Kosovo as part of DFID's Mine Action Program 1999 and 2000.

9) Canada: A contract awarded by T'SUU TINA Nation in Canada was executed in 1997. The purpose of the project was to train Tsuu T'ina North American Indians in Battle Area Clearance Techniques, covering both classroom and field instruction with accredited QA by BACTEC Personnel. The work included the training in mine clearance, Level 1 and 2 Survey and UXO clearance and the Project Management of Tsuu T'Ina Indians in carrying out the area clearance of former Canadian multi function ranges. BACTEC also carried out QA (Quality Assurance) Duties.

10) Zimbabwe: The Zimbabwe Ministry of Defense awarded a contract on behalf of sponsor organization the E.U., and work was executed between July 1998 and March 2001. The purpose of the project was to carry out the third party QA of the main contractors work. BACTEC trained local personnel to carry out Mine Clearance, Monitoring of Mine Clearance, Level 1 and 2 Survey and Mines Awareness Training.

11) Yemen: A contract awarded by Yemen Investment & Development Investment (Yeminvest) was executed between July 1996 and 1997. The purpose of the project was to carry out the Marine and Land Explosive Ordnance Survey and Clearance of 4000 hectares of the Aden Concession Zone prior to the re-

development of Aden Harbour and the survey and clearance of some 1000 ha of land contaminated with ordnance including minefields, Soviet sub munitions and a wide variety of land ordnance. BACTEC trained local personnel in mine and UXO clearance as well as Level 1 and 2 Survey and QA.

12) Angola: A contract awarded by the United Nations was executed in 1994. The purpose of the project was to set up the Angola Mine Action Centre (then called the Central Mine Action Office CMAO). This centre was formed in order to coordinate de-mining efforts of all the agencies active in Angola. This project also established the principles of training Angolans in the procedures and methods for the safe disposal of mines.

13) Taiwan: The first contract was awarded by Technique & Service International Ltd. on behalf of the Taiwanese Procurement Bureau of Taiwanese Ministry of National Defense and work was initiated in 2001. The purpose of the project is to clear UXO from the Hsin-Chu Nan-Liao Waste Ammunition Disposal site as part of the Nan Liao Land Remediation Project Phase II in Taiwan. The specific requirement of the clearance included: clearance of all forms of UXO and waste ammunition on the ground surface over the whole area (approx. 140,000 sq. m in total), location and clearance all UXO and waste ammunition underground to a depth of three metres in the whole area (excluding the earth breakwater and the zone 20 metres wide along the embankment and incinerator area—approximately 120,000 sq. m), location and clearance of all segments of projectiles bigger or longer than 25mm in the ground to a depth of 1 meter within the whole area (excluding the earth breakwater, windbreak forest area and the zone 20 meters wide long the embankment and incinerator area), disposal of all mines, UXOs and waste ammunition found in the above in an environmentally friendly manner, maintaining and ensuring the safety of local people, property and environment, QA and Project Management and UXO.

The second contract was awarded by Technique & Service International Ltd. on behalf of Kinmen Harbour Administration Department and ran from February 2001 to June 2001. The purpose of the project was to clear landmines and unexploded ordnance ahead of construction works at the site of the new commercial port

at Shuei-Tou, Kinmen Island, Taiwan. The 12,600 square meter coastal region reserved for the Shuitou port project was extensively mined in the 1950s when the confrontation between the two sides of the Taiwan Strait was at its peak. Although cross-strait tension has gradually eased in recent years, the landmines and unexploded ordnance have continued to pose threats to residents in the area and constitute an obstacle to the new port construction project. The work included the survey and location of minefields, the detection, and clearance of all mines and items of UXO and their final disposal. BACTEC was also responsible for the direction and supervision of the excavations to investigate UXO finds during the site restoration and the construction of safety, warning, and protection facilities to maintain and ensure the safety of the local people, property, and environment. The scope of work included mine/UXO awareness training for the local population and BACTEC trained personnel to carry out Level 1 and 2 Survey and Mine & UXO Clearance for the project.

The third contract was awarded by Technique & Service International Ltd. on behalf of Taiwan Power Company; work was executed in November 2000. The project's purpose was to carry out minefield and UXO clearance along a corridor for a new cooling water drainage pipeline from the power station, across the beach to the sea in Kinmen Island. The work included the survey and location of minefields, the detection and clearance of all mines and items of UXO and their final disposal. BACTEC was also responsible for the direction and supervision of the excavations to investigate UXO finds, the site restoration and the construction of safety, warning, and protection facilities to maintain and ensure the safety of the local people, property and environment. The scope of work included mine/UXO awareness training for the local population and BACTEC trained personnel to carry out Level 1 and 2 Survey and Mine & UXO Clearance for the project.

The fourth contract was awarded by Technique & Service International Ltd. on behalf of Civil Aviation Bureau of Taiwan Ministry of Communications and work was executed between 2001 and 2005. The purpose of the project was to provide operational safety, site management, mine clearance operation, provision of personnel and equipment, technical survey of and search for UXO,

Excavation and Clearance of UXO, final disposal of mines and UXOs and the QA operation. BACTEC has trained personnel to carry out Level 1 and 2 Survey and Mine Clearance as well as UXO clearance for the project. Technical surveys were carried out using proprietary survey equipment. The scope of work included mine/UXO awareness training for the local population. The Project included UXO and Landmine Clearance of bombs, landmines and assorted land service ammunition on a 90 hectare site ahead of the construction of a new airport extension at Kinmen Airport in Taiwan. Specific requirements included survey and clearance of three minefields (60,000 sq. m); detection of UXOs and waste ammunition in the ground to a depth of 6 meters within the whole area excluding the anti-tank trenches (844,000 sq. m); clearance of all UXOs and waste ammunition detected in the deep detection area; survey and clearance of UXOs and waste ammunition detected in the bottom of the four anti-tank trenches (50,000 sq. m); disposal of all mines, UXOs and waste ammunitions found in the above in an environmentally friendly manner; and maintaining and ensuring the safety of local people, property and environment QA and Project Management. The ordnance discovered during BACTEC's explosive ordnance survey, clearance, and disposal work on the site included thirty-five bombs (American and Russian) ranging in size from 100lb to 500lb and some 3,400 anti-personnel and anti-tank mines. The bombs and mines dated from the 1940/50s and were located on the site by BACTEC's explosive ordnance disposal engineers and de-miners. A number of the items were disposed of on-site, while others were disposed of at a military range.

14) China: A contract awarded by BP China was executed in 2001. The project's intent was to carry out technical UXO survey using non-intrusive survey system of some 50 hectares as a QA measure of a local geophysical company. BACTEC also carried out an investigation of 161 targets to ascertain threat.

15) Kuwait: A contract awarded by Bader Al Mulla was executed in July 2003. The purpose of the project was to carry out technical UXO survey using non-intrusive survey system of approx 6 ha and over 300 deep targets cleared.

3. EOD Technology Inc.

a. Background

EOD Technology (EODT) is an employee owned company, established in 1987. The headquarters is located in Lenoir City, TN. Other company offices are in Huntsville, AL; Baghdad; Kuwait City; Kabul; and Washington DC. The company uses Lenoir City, Baghdad, and Kuwait City as logistics centers, as well.

b. Area of Activity

EODT provides several mine related activities such as: Mine Action response capabilities in Manual de-mining, Mechanical de-mining, K9 (MDD/EDD) Programs, Small Arms-Light Weapons/MANPADS, Physical Security/Stockpile Management, Battle Area Clearance (BAC), Explosive Ordnance Disposal, Mine Risk Education, Training/Host Nation Capacity Building, and Rapid Deployment. Apart from mine action activities, EODT also provides: Munitions Response, UXO Response, Range exchange, Community Relations, Geospatial Services, Commercial UXO Security Services, Force Protection, Canine Services, Counter-IED Response Services, Technology Integration, Critical Mission Support, IT/Communications, Construction, Logistics, and Life Support Services.[866]

c. Where

The company carried out many types of operations in several countries, including the U.S. (clearance of South Western Proving Ground between January 1998 and April 2000)[867], Iraq (awarded mine action contracts in Iraq totaling $71,900,000[868] and also $122.5 million firm-fixed-price contract for static security services in Baghdad which will end by Jan. 31, 2008[869]), Afghanistan, Kuwait, Saudi Arabia, Japan, Panama, Costa Rica, Libya, Germany, and Canada.

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866 EODT Website, http://www.eodt.com/critical_mission_support/mine_action.html (accessed 4 November 2007).

867 *Final Supplement to the Engineering Evaluation / Cost Analysis for Former Southwestern Proving Ground Hope*, Arkansas, ES-2, Website, http://www.swl.usace.army.mil/projmgt/Final%20SWPG%20EECA.pdf (accessed 14 November 2007).

868 Jason Goff, Jennifer Wilson, *Organized Crime in Iraq*, 2004, 29, Website, http://64.233.179.104/scholar?hl=en&lr=&q=cache:wMa9ODjD1DYJ:www.stanford.edu/class/e297a/Organized%2520Crime%2520in%2520Iraq.doc+iraq+%22EOD+Technology%22 (accessed 14 November 2007).

869 "EODT Wins Baghdad Security Services Contract," *Defense Industry Daily*, 20 June 2007, Website, http://www.defenseindustrydaily.com/?s=eodt (accessed 14 November 2007).

4. GEOMINES S.a.s,

a. Background

GEOMINES S.a.s is a French commercial company founded in 1995[870] by a merger of two companies: GEOCEAN, specializing in marine works, and EOD-NT-FRANCE, specializing in the land and underwater de-mining sector, specifically land and underwater mine/UXO clearance operations, E.O.D. survey & training and consultancy.[871]

b. Area of Activity

After their merger, the two companies (GEOCEAN - EOD-NT-FRANCE) have become a proficient organization capable of disposal of all types of UXO in all cases.[872] Company employees including management personnel and the operational personnel have required certificates & diplomas to perform the disposal and clearance operations.[873] In addition, most of the employees are retired military personnel.[874] The company has been doing pyrotechnic cleanup business in France and performs more than twenty contracts each year, especially for ammunition dating from the two World Wars.[875] Geomines' expertise extends to these areas: Atmospheric and Underwater Mine Clearance Operations, Ammunition, Retrograde Demolition, Toxic Ammunition Clearance Operations, Rock Blasting Operations, and Pyrotechnic Safety Regulations.[876]

c. Where

GEOMINES has been conducting all kinds of mine related operations around the world, especially in the Middle East, Asia, and Africa. GEOMINES is

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870 U.N. Mine Action Website, http://www.e-mine.org/org.asp?o=119 (accessed 4 November 2007).

871 E. Crescenzo, C. Bruschini, *The EU in Humanitarian De-mining-State of the Art on HD Technologies, Products, Services and Practices in Europe*, EUDEM, November 2004, 29, http://www.eudem.vub.ac.be/files/EUDEM2_HDSoAFrancev2_6.pdf (accessed 4 November 2007).

872 "Exploring Manual De-mining Techniques," *Journal of Mine Action*, version 4.2, June 2000, Website http://maic.jmu.edu/Journal/4.2/Profiles/geomines.htm (accessed 4 November 2007).

873 U.N. Mine Action Website, http://www.e-mine.org/org.asp?o=119 (accessed 4 November 2007).

874 GEOMINES Website, http://www.geomines.com/anglais/savoirfaire-gb.html (accessed 4 November 2007) .

875 Crescenzo, The EU in Humanitarian De-mining-State of the Art on HD Technologies, Products, Services and Practices in Europe.

876 "Exploring Manual De-mining Techniques."

currently carrying out operations globally, especially in Europe and Africa, and is performing various General Assessment and technical E.O.D. surveys.[877] Geomines has successfully completed missions in Bosnia, Cambodia, El Salvador and Egypt, among other places.[878]

5. GERBERA GmbH

a. Background

German mine action company GERBERA GmbH was founded in 1994 with the aim of combining political and contributions efforts with private business.[879]

b. Area of Activity

Gerbera GmbH provides several mine related operations, including: mapping mine-contaminated fields, arranging, executing, and examining "contract documents," providing emergency help in case of mine threats, de-mining, performing quality assurance tests, and training and supervising local de-miners and EOD workers. It is one of the few companies capable of doing mine clearance both on land and in the sea.[880]

c. Where

ASIA

1) Vietnam:[881] The first contract was awarded by a German NGO, Potsdam Kommunikation e.V., funded by the German Foreign Office and work was executed in 1999. The purpose of the project was to help boat people and flood victims settle and to improve environmental conditions. Gerbera established a local de-mining team to clear the area reserved for building houses for boat people in the Cau Hai lagoon. A landmine survey to collect information about UXO and mines in the settlement area

877 U.N. Mine Action Website http://www.e-mine.org/org.asp?o=119 (accessed 4 November 2007).

878 "Exploring Manual De-mining Techniques."

879 Gerbera Website, http://www.gerbera-de-mining.de/g0400en_company.php4 (accessed 4 November 2007).

880 Journal of Mine Action, version 4.2, June 2000, Website http://maic.jmu.edu/JOURNAL/4.2/Profiles/gerbera.htm (accessed 4 November 2007).

881 Gerbera Website, http://www.gerbera-de-mining.de/g0101en_asien.php4 (accessed 4 November 2007).

was conducted by Gerbera in 1999 prior to de-mining activities. In addition, mine clearance operations were carried out to settle flood victims in the more distant neighborhood of Hue.

The second contract was awarded by a German NGO, Solidaritätsdienst International e.V. (SODI), funded by the German Foreign Office. The purpose of the project was to de-mine and perform EOD operations for a resettlement project in the Quang Tri province. Local people were trained on de-mining and EOD in 2002[882] in a project to help settle people temporarily living on former U.S. military bases. German de-mining experts conducted a survey, de-mining and disposal of UXOs found around the resettlement area.

2) Laos:[883] A contract was awarded by a German NGO, Potsdam Kommunikation e.V., and funded by the German Foreign Office. The purpose of the project was to provide guidance and employ an adequate amount of local de-miners and EOD staff in the Huaphan and Luang Prabang provinces in Northern Laos (since September 1996, Gerbera has destroyed over 34,000 UXO in the Luang Prabang province.[884]) Initially, GERBERA set up its control system and then trained and guided managed big teams (almost 175 local staff) for de-mining and UXO clearance. The de-mining operations were carried out in areas designated by the Laotian government (UXO-Lao) as higher priority areas. Trainees were taught EOD operations, all level surveys, threat prevention in emergency and efficient MRE applications in schools and villages. During the MRE operations held in Houaphan Province, UNICEF and GERBERA assumed a lead role in the coordination of community awareness activities, establishing a technical working group for the topic.[885]

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882 Landmine Monitor 2003 Website, http://www.icbl.org/lm/2003/vietnam.html (accessed 14 November 2007).

883 Gerbera Website, http://www.gerbera-de-mining.de/g0101en_asien.php4 (accessed 4 November 2007).

884 Lisa M. Vanada, "GERBERA Mine Action Activities in Vietam and Laos," *Journal of Mine Action*, version 5.1, Website http://maic.jmu.edu/JOURNAL/4.2/Profiles/gerbera.htm (accessed 14 November 2007).

885 *A Study of the Role of Survey in Mine Action*, Geneva, March 2006, 90, http://www.gichd.org/fileadmin/pdf/publications/Survey_in_MA_March2006.pdf, (accessed 14 November 2007).

During the de-mining operations in the country, de-miners located a variety of UXO, some of which were dated as far back as the 1940s.[886]

3) Yemen:[887] It was a contract awarded by the German Foreign Office. The purpose of the project was provision of a technical advisor for a de-mining program in Yemen. After the provision of the advisor, GERBERA both managed the de-mining teams working under national mine clearance program and planned the work of the clearance teams.

AFRICA

1) Angola: The first contract was for the provision of three de-mining experts for UNOPS in Saurimo and Luena in the northeastern Angola. The contract was awarded by the German Foreign Office for supervision of the local de-mining teams and providing effectiveness of their functioning, planning, and supervision, as well as documenting the work performed. In addition, the de-mining teams' leaders were trained for the overall procedures.[888]

The second contract was awarded by the German Foreign Office for providing QA in de-mining operations on roads and around bridges for the U.N. operations in Angola (UNAVEM III). The actual de-mining contract (In 1996 and 1997)[889] for clearance of 4,800 km of main roads in Angola had been awarded to another commercial firm from South Africa, Mechem. According to the contract, Gerbera would provide permanent quality control for the Mechem de-mining teams. Gerbera assigned two QA teams, each of which was comprised of three to four people and a project leader/coordinator providing coordination from U.N.HQ in Luanda. [890]

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886 "Profile of Gerbera," *Journal of Mine Action*, Issue 4.2, June 2000, Website, http://maic.jmu.edu/JOURNAL/4.2/Profiles/gerbera.htm (accessed 14 November 2007).

887 Gerbera Website, http://www.gerbera-de-mining.de/g0101en_asien.php4 (accessed 4 November 2007).

888 Africa, Gerbera Website ,http://www.gerbera-de-mining.de/g0102en_afrika.php4 , (accessed 4 November 2007).

889 Profile of Gerbera, Journal of Mine Action, Issue 4.2, June 2000.

890 Africa, Gerbera Website.

The third contract was awarded by the German Foreign Office (financial support provided by the German government) for providing permanent QA in two World Food Project (WFP) projects to de-mine the roads of Angola. GERBERA assigned two experts to provide QA in two projects. Experts controlled the de-mining operations by using mechanical means and using manual de-mining procedures to clear the roads around Luanda in the north and around Lobito in the south. The main reasons for the overall operations were providing a safe environment for the return of the IDPs, and eliminating the risks posed by landmines for the local villagers and rural farmers when they need to access to their former settlement areas and access to markets in the cities.[891]

EUROPE

1) Kosovo:[892] The first contract was awarded by a German NGO, Potsdam Kommunikation e.V. (financed by the German Foreign Office) for sending three de-mining teams into the German sector in Kosovo. The project included training of eighteen local de-miners, de-mining operations in the German, Italian and U.S. sectors in Kosovo and providing a mobile EOD Capacity for the UNMACC.

The second contract was awarded by a German NGO, Potsdam Kommunikation e.V. (Financed by German Foreign Office) for the deployment of three mobile de-mining and EOD teams in Kosovo. Some more local de-mining teams were trained and deployed in the German sector in Kosovo to help return of refugees and IDPs. These trained teams were effectively used for road and building clearance to enable a return of refugees. The works included surveys, roving operations and immediate risk prevention. After completion, 900 houses and the farms around them were transferred to the Technical Emergency Service (THW) in Kosovo for rebuilding of damaged buildings. Besides, water wells were examined and booby traps were cleared.

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891 Gerbera Website, http://www.gerbera-de-mining.de/g0102en_afrika.php4 (accessed 4 November 2007).

892 Gerbera Website http://www.gerbera-de-mining.de/g0103en_europa.php4 (accessed 4 November 2007).

The company had ten employees serving in the country as of September 15, 1999.[893]

6. MAAVARIM - Civil Engineering LTD.

a. Background

Maavarim Civil Engineering Ltd. was founded in 1995 by two former senior officers of the Israeli Defense Forces.[894]

b. Area of Activity

Today, Maavarim operates in three main areas: Humanitarian Mine Clearance, Explosive Ordnance Disposal (EOD), Mine Detection Dogs. The company is supported by the Israel Ministry of Defense. Maavarim claims to have cleared over 3 million square meters of land since 1995, including agricultural land, physical infrastructure, and rural areas. Between May 2002 and May 2003, Maavarim surveyed and confirmed that no mines were present in approximately 10,000 square meters of land to be used for a bridge construction project in the free-zone area between Israel and Jordan, close to Bet She´n in the Jordan valley.

c. Where

MINE AND UXO CLEARANCE

1) Croatia: The first contract was awarded by World Bank[895] and the Croatian Mine Action Center and work was executed in 1999. Work involved removal of all mines laid in and around Sunja Railway station. Due to the highly dense vegetation in the area, vegetation-cutting equipment was used during operations. MAAVARIM used a remote controlled Mini Flail, and Explosive Detection Dogs during the clearance phase as well.

The second contract was awarded by World Bank and the Croatian Mine Action Center and work was executed in 2002. Contract was for clearance of

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893 *Toward Stability and Prosperity a Program for Reconstruction and Recovery in KOSOVO*, November 3, 1999, 88, Prepared by the European Commission and the World Bank in Support of the United Nations Mission in Kosovo, Website http://www.seerecon.org/kosovo/documents/kosovo_toward_stability_and_prosperity_1999.pdf (accessed 14 November 2007).

894 MAAVARIM Website, http://www.bnc-il.com/maavarim/profile.htm (accessed 4 November 2007).

895 Landmine Monitor 2003 Report, Website, http://www.icbl.org/lm/2003/israel.html (accessed 14 November 2007).

landmines laid near the town of Sibenik in southern Croatia. MAAVARIM used MDDs and a remote controlled Mini Flail type MV-3 owned by MAAVARIM, and de-mined several landmines in the area.

During these two operations, Maavarim de-mined 700,000 sq m of area in Croatia.[896]

2) Israel: The company completed several Mine AND Uxo clearance operations within Israel. These operations are as follows:

Ramat Hovav, Israel, 2002 : This contract was awarded by the Industrial Council of Ramat Hovav for clearance of an area that used to be a fire zone in Southern Israel (near the city of Beer-Sheva). The area was cleared for gaining available area for construction of buildings for new industries. The area was examined by mine detectors and bomb locators and then cleared completely.

Admiralty, Israel, 2000: This contract was for the clearance of the vicinity of a former ammunition depot area which exploded and scattered all the UXOs around. Experts examined the area up to the depth of seven meters.

Kibbutz Gesher, Israel, 1999: This contract was awarded by the Israeli Ministry of Tourism and Kibbutz Gesher. Company de-mined the minefields surrounding a tourist site and west bank of the Jordan River. Purpose of the project was both safety of the tourists and continuation of the archeological excavations in the area.

Har Adar, Israel, 1998: This contract was awarded by 'Arim' construction company, Israeli Ministry of Defense and Ministry of Housing. Company de-mined an old and mixed Jordanian minefield near Jerusalem. During the operations, de-miners had to use combination of manual and Mechanical methods, bulldozers, baggers and a stone crusher. At the end 'Arim' construction company constructed the Har Adar settlement, consisting of 1,200 new houses.

Jordan Park Stage 1, Israel, 1998: This contract was awarded by the Israeli Ministry of Defense and Ministry of Tourism. Company was tasked to de-mine

896 Aharon Etengoff and Prof. Gerald Steinberg, "The Israeli Defense Force's Humanitarian De-mining Efforts," *Journal of Mine Action*, Issue 8.1, June 2004, http://maic.jmu.edu/Journal/8.1/focus/etengoff/etengoff.htm (accessed 4 November 2007).

safe paths area in Jordan Park adjacent to the Jordan River after floods. MAAVARIM used mainly manual de-mining method, and in some points used mine extractor and bagger.

Jordan Park Stage 2, Israel, 1998: In the second phase, company was tasked to extend the de-mining to the rest of the park

Had Ness, Israel, 1998: This contract was awarded by the Had Ness Moshav and The Israeli Ministry of Defense. Company was asked to demine Syrian mine fields in the Golan Heights in order to provide more construction area for the new settlements to be built. Company used both manual and mechanical methods as AARDVARK flail, a bagger, and a mine extractor.

Bnot Yaakov Bridge, Stage 1, Israel, 1997: This contract was awarded by the Israeli Ministry of Defense and Ministry of National Infrastructure for clearing paths in old Syrian minefields to allow geological survey.

Bnot Yaakov Bridge, Stage 2, Israel, 1998: After completion of clearing some paths in the area, Maavarim was asked to de-mine the total area of the minefields.

Hula Power Station, Israel, 1996: This contract was awarded by the Israeli Electric Company & Ministry of Defense. After completion of the project around the power station supplying electricity to much of Northern Israel, it became possible to expand the site.

Tzur Baher in 2006: Company was contracted by the municipality of Jerusalem to carry out de-mining operations in mine-affected land in Tzur Baher, a small Palestinian village on the eastern outskirts of Jerusalem. The Israel Defense Forces ensured the quality of the de-mining operation. Maavarim managed to clear 50,000 square meters of mine-affected land for the community in November 2005, by manual and mechanical de-mining applications.[897]

[897] Landmine Monitor 2006 Report, Website, http://www.icbl.org/lm/2006/palestine.html (accessed 14 November 2007).

MINE RISK EDUCATION

Joint Distribution Committee, Albania, 1999 : Maavarim carried out MRE operations in Albania for refugees from Kosovo before their return to Kosovo.[898] This contract was awarded by the JDC in order to enable people from Kosovo a safe return to their homes after the conflict is over.

Israeli Ministry of Education, Israel, 1999: This contract was awarded by Israeli Ministry of Education to prepare MRE program for Druze children and communities living on the Golan Heights, an area surrounded by vast mine fields.

MINE (EXPLOSIVE) DETECTION DOGS (MDDs) PROJECTS: MAAVARIM efficiently used the Mine Detection Dogs in almost all kinds of contracts for detection and explosive search purposes. Most important projects and organizations in which MMDs are used are listed below:

- Oil Refineries Haifa, Israel
- Oil Refineries Ashdod, Israel
- Border Control (Israel Airport Authority), Israel
- Ben Gurion Airport (Israel Airport Authority), Israel 2003
- Festival Cruise Ships, International Cruises
- Nachshon Security Company, Israel
- Ben Gurion Airport (Israel Airport Authority), Israel 2004
- Israeli MOD, checkpoints search, Israel
- Israel Prison Services, Israel

EOD SERVICES

Israeli MOD, 2002: MAAVARIM was contracted by the Ministry of Defence in May 2002 for disposal of 800 tons of expired ammunition.

RAMTA (Israel Aircraft Industries' R&D Body), Israel, 1999: MAAVARIM was contracted by RAMTA for disposal of a large amount of ammunition from an old bunker.

7. MINETECH International

a. Background

The company was established by retired Colonel Lionel Dyck in 1992. After a period of partnership with MineClear International, a division of the Exploration

[898] The Israeli Defense Force's Humanitarian De-mining Efforts.

Logistics Group plc. (Exploration Logistics is a group specializing in remote site support, principally for oil companies, and entered into mine clearance in 1988), two companies decided to found a new entity, and MineTech International was established in 2001 by the merger between Mine-Tech of Zimbabwe and MineClear International[899].

After the formation of a new company, MineTech International was awarded a contract in Lebanon in 2002, which was the biggest de-mining operation in the world at the time. After completion of the project, MineTech International became the contractor for the U.N. Rapid Response team. In 2003 MineTech International acquired the MineTech Dog School in South Africa.[900]

MineTech has two operational centers located in Zimbabwe and the United Kingdom and three permanent facilities in the United Kingdom, Zimbabwe and South Africa.[901]

b. Area of Activity

The company provides the following principal services: de-mining and clearance of UXOs, assisting mainly the oil and gas companies to make business in countries affected by mines and UXOs.[902] In addition, company is capable of deploying MDD teams wherever needed.[903]

The Company claims that it can send de-mining and MDD teams and machines anywhere in the world in a week at most; they have successfully completed over 150 contracts awarded by several governments, commercial companies and international organizations; they have cleared more than one million mines and UXO.[904]

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899 Global Mine Action Registry, James Mason University, Website, http://maic.jmu.edu/gmar/details.asp?OID=472 (accessed 05 November 2007).

900 Minetech international Website, http://www.minetech.co.uk/history.html (accessed 5 November 2007).

901 U.N. Mine Action Website, http://www.mineaction.org/org.asp?o=94 (accessed 14 November 2007).

902 Minetech International Website, http://www.minetech.co.uk/about.html (accessed 5 November 2007).

903 GICHD Website, http://www.gichd.org/links-information-database/organisations/?tx_gichd_pi1organisation_id=277 (accessed 14 November 2007).

904 Minetech International Website, http://www.minetech.co.uk/about.html (accessed 5 November 2007).

Unlike most of the other commercial firms, MINETECH sends its own full-time staff to the contaminated area rather than just training local employees.

c. Where

Early projects included mine clearance work in Mozambique, the Balkans, the Horn of Africa and Nicaragua.

AFRICA[905]

1) Angola: De-mining teams cleared 5,000 km of roads. Technical assessment was carried out for an oil company.

2) Egypt: Company was awarded management and training of local UXO and de-mining contractors.

3) Eritrea: The contract awarded by World Bank was mainly about provision of underwater search teams to carry out surveying and mapping of all UXO within Massawa harbor. Mine Tech International also trained local divers in underwater survey techniques.

4) Libya: Company carried out several operations in Libya including Battle Area Clearance (BAC), mine and UXO clearance and MRE training.

5) Morocco: Company conducted underwater search for ammunition thrown into sea harbor during World War II.

6) Mozambique: A Level 2 survey and de-mining operation was conducted for preparation of an 1800 km power line project. The company used both mechanical de-mining teams assisted with MDDs and manual de-mining teams in Manica Province.

7) Niger: Minetech was contracted by World Bank for consulting service to assess the need for a weapons recovery and removal program.

8) Sierra Leone: This contract was financially sponsored by World Bank for assistance to local forces in developing a program to recover and make weapons safe after the end of civil war.

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905 Minetech International Website, http://www.minetech.co.uk/projects_africa2.html (accessed 5 November 2007).

9) Somalia: Minetech was contracted to conduct some Level 1 and 2 surveys on behalf of aid agencies to help the transfer of staff and necessary tools and equipment to villages.

10) Sudan: MineTech provided MDD support for a de-mining NGO dealing with humanitarian de-mining in southern Sudan. Main purpose of the operation was clearance of roads to help the transfer of aid staff and necessary tools to wherever needed and to facilitate the return of IDPs and refugees.

11) Zambia: Company provided MRE for NGO staff operating in mine contaminated areas.

12) Zimbabwe: Road clearance and power lines routes clearance were carried out along the border.

AMERICAS[906]

1) Colombia: Minetech carried out safety and security evaluations of seismic programs on behalf of an oil company.

2) Nicaragua: Company sent manual de-mining and MDD teams to search and de-mine the area after the destruction due to Hurricane Mitch.

3) Venezuela: Level 2 survey and EOD operations were conducted for UXOs before a seismic acquisition project.

ASIA[907]

1) Azerbaijan: Company provided the local mine action authority with MDD capability.

2) Cambodia: Technical evaluation of another de-mining contract was conducted for an international donor.

3) Iran: Company provided MRE for executive staff prior to their visit to the oilfields.

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906 MineTech International Website,http://Www.Minetech.Co.Uk/Projects_America2.Html (accessed 5 November 2007).

907 MineTech International Website, http://www.minetech.co.uk/projects_asia2.html (accessed 5 November 2007).

4) Kuwait: MineTech was contracted to clean up evaporation pits in the Wafra oilfields. MineTech's verified the absence or presence of UXO within the pits, many of which were full of oil sludge. Minetech verified more than 2.5 million square meters of area.

5) Laos: MineTech cleared UXOs left from the Vietnam War for the safety of the Nam II hydroelectric project in three years. MineTech also provided MRE, underwater EOD clearance and training for local de-miners.

6) Sri Lanka: Level 2 surveys, de-mining by the use of MDDs and manual de-mining operations were completed in the Jaffna peninsula.

EUROPE[908]

1) Albania: MineTech trained local military personnel in the safe storage and transport of explosive equipment for NATO's Partnership for Peace program.

2) Bosnia & Herzegovina: This contract, sponsored by the World Bank, was both for training local staff in de-mining and EOD operations by MDD teams' support and consequently monitoring/technical supervision of manual de-mining and EOD clearance.

3) Croatia: MineTech was contracted to support UN/CROMAC managed clearance programs by its manual clearance teams.

4) Kosovo: Company carried out MRE and surveys to assist refugee resettlement.

5) Macedonia: Contract included provision for MDD and manual de-mining teams to search for and clear mines and UXO along the Kosovo border.

6) The Netherlands: Technical consultancy for the ammunition dumped into the sea after World War II.

7) Turkey: Contract included risk assessment support for an oil exploration program executed in Eastern Anatolia.

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908 MineTech International Website, http://www.minetech.co.uk/projects_europe2.html (accessed 5 November 2007).

8) United Kingdom: Contract was for Level 2 survey and disposal of UXOs in ranges in Wales.

MIDDLE EAST[909]

1) Afghanistan: Company has been providing several services on several projects for international construction companies, sponsor governments and NGOs since February 2005.[910] Its activities cover nearly every type of service: mechanical/manual de-mining, EOD operations, MDD and Explosive Detection Dogs (EDD) for security companies.

2) Iraq: Company had contracts with the UN.[911] First, de-mining, EOD operations and surveys were contracted for southern Iraq, and then provision of mini-flails in northern Iraq was contracted. Following these contracts, Minetech was further contracted by several organizations/companies for provision of UXO search and clearance of reconstruction sites north of Baghdad and provision of armed security teams. The company, still working with thirty EDD teams, has ongoing contracts in Baghdad for several security contractors.

3) Lebanon: Company carried out de-mining operations in all minefields and cleared UXOs along the Israeli border.

After being contracted by UAE in 2002, MineTech deployed with all its staff and necessary tools into South Lebanon on 1 May 2002, and started de-mining activities on 6 May 2002. the two sectors allocated were comprised of 171 minefields and seventeen booby traps, and covered an area of some 245 square kilometers. Capacity built in the region included:

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909 MineTech International Website, http://www.minetech.co.uk/projects_middle2.html (accessed 5 November 2007).

910 Mine Action Program for Afghanistan 1384 (2005) Progress Report, 39, Website, http://www.acdi-cida.gc.ca/INET/IMAGES.NSF/vLUImages/Afghanistan/$file/1384%20Final%20Report_%20en.pdf (accessed 15 November 2007).

911 Joint Iraq Needs Assessment Working Paper – Mine Action, October 2003, 6, Issued by UNITED NATIONS / WORLD BANK, http://siteresources.worldbank.org/INTIRAQ/Overview/20147664/MINE%20ACTION%20final%20sector%20report%2016%20October.pdf (accessed 15 November 2007).

- 10 x 10 man Manual De-mining teams
  2 x Survey/EOD Teams
  2 x Mechanical Support Teams
  10 x Mine Detection Dog Teams
- 1 x ARMTRAC 325 Flail
  1 x ARMTRAC 100 Flail

The company fulfilled its contractual obligations on 29 August 2003 and left the country on 31 August 2003.[912]

4) Oman: BAC and Level 2 surveys and markings of UXOs were completed on a former military range before an oil exploration project.

5) Yemen: Company provided Level 2 survey and clearance operations for oil companies and geophysical contractors. Additionally, de-mining teams of the Yemeni military were trained on behalf of oil companies.

8. RONCO Consulting Corporation

a. Background

RONCO Consulting Corporation, founded in 1974, is an international professional services firm based in Washington, D.C. The company began its mine action services after 1980. CEO Edelberg explains in an interview[913] how the company began its mine action services:

> We started working internationally in 1980. In the late `80s, we won an open competition to assist the U.S. government in running a humanitarian assistance program in war-affected Afghanistan during the Soviet occupation. Part of that program was training Afghans on the use of mules as pack animals so that they could bring supplies over the mountain. When that program was done, we suggested to the U.S. Embassy that they try a pilot program using mine-detecting dogs and to approach the Thai Army, who had a program, to contribute to the Afghanistan war effort. That was done, and the Thais contributed 14 dogs and trainers. We used the facilities that had been previously used for the mule training. The program was very successful, and the U.S. government asked us to expand it and establish a mine dog training center and to train a cadre of Afghan NGOs that, to this day, still continues to successfully operate in the form of an NGO we created. We left them with 92 mine-detecting dogs along with a

912 Mine Action Coordination Center South Lebanon, Website, http://www.maccsl.org/clear_org.htm (accessed 14 November 2007).

913 Margaret Busé, "RONCO Executives Talk about De-mining," *Journal of Mine Action*, Version 4.2 June 2000. Website http://www.maic.jmu.edu/journal/4.2/features/ronco/ronco.htm (accessed 6 November 2007).

> full coterie of vehicles and supplies. This program has continued to expand and now employs over 4,000. This is a prime example of RONCO's philosophy—to help develop institutional capacity and indigenous personnel. From here, we moved to Mozambique where we won a contract to clear 2,200 km of road that allowed over one million Mozambican refugees to return to their homes.

Ronco has provided all kinds of mine related operations in most parts of the world. Ronco's portfolio of clients includes: the U.S. Department of State; U.S. Department of Defense; U.S. Agency for International Development; United Nations; World Bank; NATO Maintenance and Supply Agency; Canadian, British, German, and Japanese governments; and commercial firms such as Fluor, The Louis Berger Group, Perini, Rizzani deEccher, PAE Government Services, Inc., United Infrastructure Projects, Contrack International, and Blackwater.[914] RONCO has also used MDDs in Bosnia, Croatia, Kosovo, Albania, Mozambique, Namibia, Rwanda, Eritrea, Azerbaijan, Lebanon and Afghanistan. As a result, MDDs have developed into an integral component of RONCO's mine clearance "tool kit."[915]

RONCO has a professional staff including nearly 200 technical advisors who deal with de-mining, UXO clearance and disposal, and improvised explosive ordnance disposal (IED).[916]

b. Area of Activity

Company specializes in humanitarian and commercial mine action and EOD, environmental remediation, security services, and post-conflict operations.

Since 1981, RONCO has completed over 300 development projects, and more than 200 de-mining and UXO clearance, explosive ordnance disposal (EOD) projects. RONCO has executed de-mining and security operations and trained local staff in more than thirty-five countries. The company claims to have completed clearance of more than 250 million square meters of land; training and providing work for of thousands of locals; resuming the security of vital infrastructure such as power lines or

914 RONCO Website, http://www.roncoconsulting.com/about.html (accessed 6 November 2007).

915 "Mine Detection Dogs: An Integral Tool in RONCO Mine Clearance Operations," *Journal of Mine Action*, Issue 7.1, April 2003, Website, http://maic.jmu.edu/journal/7.1/features/ronco/ronco.htm, (accessed 14 November 2007).

916 RONCO Website, http://www.roncoconsulting.com/about.html (accessed 6 November 2007).

plants and road networks; security for personnel, buildings and equipment in hostile areas; and risk mitigation from terrorist groups. RONCO has provided procurement services for commodities, especially for heavy machinery security and de-mining-related protective gear to state-of-the art communications systems.[917]

RONCO trains and employs local staff in the following mine related areas:

- Manual De-mining
- Mine Detection Dogs
- Explosives Detection Dogs
- Explosive Ordnance Disposal
- Improvised Explosive Ordnance Disposal
- Basic /Advanced Trauma Life Support
- Security
- Management

RONCO was contracted by the Office of Weapons Removal and Abatement in the Bureau of Political-Military Affairs for provision of a full range of peace-enhancing services around the world, ranging from de-mining to the construction of facilities to secure a variety of small arms and light weapons. Contracts awarded to RONCO (with ArmorGroup North America and DynCorp International LLC) are a series of performance-based service contracts (indefinite delivery/indefinite quantity contracts) having a total maximum potential value of up to $500 million over a term of one base year and four option years.[918]

c. Where

RONCO has ongoing projects in Afghanistan, Eritrea, Iraq, Lebanon, Mozambique, Sri Lanka, and Sudan. The countries in which RONCO has operated are as follows:

- Afghanistan
- Albania
- Armenia

[917] RONCO Website, http://www.roncoconsulting.com/about.html (accessed 6 November 2007).

[918] U.S. Department of State's Media Note, *U.S. Department of State Awards Multiple Contracts to Clean Up Battlefields and Control Conventional Weapons*, by U.S. Department of State, http://www.state.gov/r/pa/prs/ps/2005/45859.htm (accessed 14 November 2007).

- Angola
- Azerbaijan
- Bosnia
- Central America
- Djibouti
- Chad
- Ecuador
- Egypt
- Eritrea
- Estonia
- Ethiopia
- Georgia
- Guinea
- Iraq
- Jordan
- Kosovo
- Laos
- Lebanon
- Mauritania
- Mozambique
- Namibia
- Nigeria
- Oman
- Peru
- Rwanda
- Sri Lanka
- Sudan
- Thailand
- U.S.A.
- Vietnam
- Yemen

- Zambia
- Zimbabwe

RONCO's Major Operations are summarized below:

1) Afghanistan: Most of RONCO's operations in the country are concentrated on creating a national de-mining policy and increasing the mine action capabilities. After being contracted, RONCO tried to improve pre-existing Afghan de-mining elements, coordinate their work and bring them up to the level of the International Mine Action Standards (IMAS**).**[919] Ronco has been providing technical support by teaching modern de-mining skills to local Afghan NGOs since December 2001, under two separate contracts (the first of which was a $2.3 million contract awarded by the U.S. State Department[920] and another $3,100,000 contract[921] totaling $5.4 million.).

RONCO provided six de-mining/EOD specialists as advisors to help the U.N. develop an operational capacity, and gave surveillance service for de-mining/BAC and EOD operations. RONCO's specialists worked with local de-mining NGOs to improve and progress their operations and safety procedures, especially in dealing with unexploded U.S. cluster bombs. Through the course of this particular contract, RONCO trained twelve, 30-man BAC teams to find and dispose of submunitions; four, 7-man EOD teams (trained to Level 4); and one, 10-man EOD team (trained to Level 2). RONCO's provision of humanitarian de-mining services under contract with the U.S. Department of State lasted for three years until August 2005. Until that time, de-mining teams of RONCO had cleared more than four million square meters of land at Bagram and Kandahar during its operations.[922]

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919 John Lundberg, "Reflecting on 10 Years of RONCO Operations in Mine Action," Journal of Mine Action, 9.1, 2005, Website, http://maic.jmu.edu/journal/9.1/Focus/lundberg/lundberg.htm, (accessed 14 November 2007).

920 U.S. Department of State Website, http://usinfo.state.gov/journals/itps/0104/ijpe/afghanistan.htm (accessed 6 November 2007).

921 *To Walk the Earth in Safety: The U.S. Commitment to Humanitarian Mine Action* ,Released by the Bureau of Political-Military Affairs, August 2004, http://www.state.gov/t/pm/rls/rpt/walkearth/2004/37228.htm (accessed 6 November 2007).

922 RONCO Website, http://www.roncoconsulting.com/interface/popup/interface.php?area=hmc&label=demining%20activites&sidebar=1&scontent=Afghanistan&table=demining_activities&content=000001, (accessed 6 November 2007).

Under a U.S. Agency for International Development (USAID) contract, RONCO first initiated the concept of using dogs for mine detection in de-mining operations. RONCO created a mine dog capacity by the involvement of a Royal Thai Army unit operating with fourteen de-mining dogs with Thai Army handlers to train Afghans in MDD assisted de-mining techniques.[923] Later on untrained dogs were purchased from other countries (mainly from Holland) to be trained inside Afghanistan.[924]

Besides, under the financial sponsorship of Department of State, RONCO formed an EOD team specifically dealing with the disposal of caches of ammunitions in September 2003. As of the end of 2006, the company has been conducting de-mining for coalition forces at Bagram air base for four years (clearing more than 6,000 mines and UXO), as well as commercial explosive ordnance disposal (EOD) work.[925]

The last contract the company secured in Afghanistan was awarded by the U.S. Joint Contracting Command (Iraq/Afghanistan, Baghdad, Iraq) on March 27, 2007—a $16,448,126 firm-fixed-price contract for de-mining and UXO clearance in Afghanistan[926] to be complete by March 28, 2008.[927]

2)Albania:[928] The Albanian Emergency De-mining Force (AEDF) was established by RONCO by deploying some part of its de-miner staff and MDDs from Bosnia to Albania, following the signing of a contract between RONCO and ITF (ITF

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923 Humanitarian De-mining: Ten Years of Lessons.

924 *Mine Detection Dogs Study*, 3, Published by GICHD-UNMAS, Website, http://www.kra.go.ke/knowledgemanagement/pdf/controls/TOR%20Mine%20Detector%20Dog%20Study%20for%20UN.pdf (accessed 7 November 207).

925 *Landmine Monitor* 2006 Report, Website, http://www.icbl.org/lm/2006/afghanistan (accessed 7 November 2007).

926 U.S. Department of State Website, http://www.defenselink.mil/Contracts/Contract.aspx?ContractID=3483 (accessed 7 November 2007).

927 Defense Industry Daily, 02 April 2007, Website http://www.defenseindustrydaily.com/165m-to-ronco-to-remove-mines-in-afghanistan-03183/ (accessed 14 November 2007).

928 RONCO Website, http://www.roncoconsulting.com/interface/popup/interface.php?area=hmc&label=demining%20activites&sidebar=1&scontent=Albania&table=demining_activities&content=000002.

contracted RONCO and Swiss Federation for Mine Action for $2,506,287[929]) contractors to carry out de-mining in the country on May 14, 2001. The purpose of the contract was to conduct de-mining operations on the Albania-Kosovo border with two teams, each consisting of a team leader, six de-miners, three sets of MDDs with handlers, and one medic along with two Albanian interpreters.[930] RONCO cleared 108,773 square meters of land, and found 267 mines and nineteen items of UXO between 22 May 2001 and 20 October 2001.[931]

3) Angola:[932] RONCO started its operation in the country in 1996 under the subcontract of another de-mining firm, MECHEM, for a United Nations project to clear 7,000 kilometers of roads. RONCO contributed to the contract by provision of MDDs, handlers, and supervision of the operations on contaminated roads. During the operations, RONCO's MDDs have been used efficiently and de-miners managed to clear 4,000 kilometers of roads in seven months (prime contractor Mechem completed its clearance contract by December 1996[933]) by using MDDs and mechanical sniffers. Moreover, eleven Angolan de-miners also worked with the RONCO team.

4) Mozambique: The U.S. Agency for International Development (USAID), targeting the clearance of 2170 kilometers of priority designated roads in Manica, Sofala and Zambezia provinces earmarked a total of $4 million. RONCO was selected in late September 1993 for the project.[934] RONCO initiated a program with training MDDs and dog handlers in late 1993 and began clearance operations in mid-1994.[935]

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929 Landmine Monitor Website, http://www.icbl.org/lm/2002/slovenia, (accessed 7 November 2007).

930 RONCO Website, http://www.roncoconsulting.com/interface/popup/interface.php?area=hmc&label=demining%20activites&sidebar=1&scontent=Albania&table=demining_activities&content=000002.

931 Landmine Monitor Website, http://www.icbl.org/lm/2002/slovenia , (accessed 7 November 2007).

932 RONCO Website, http://www.roncoconsulting.com/interface/popup/interface.php?area=hmc&label=de-mining%20activites&sidebar=1&scontent=Angola&table=de-mining_activities&content=000004 (accessed 7 November 2007).

933 Landmine Monitor Website, http://www.icbl.org/lm/1999/angola (accessed 7 November 2007).

934 *Landmines: A Deadly Legacy*, By Arms Project (Human Rights Watch), Physicians for Human Rights (U.S.), 214.

935 A Study of the Role of Survey in Mine Action, 138.

In the following phases of humanitarian mine action held in the country, RONCO was contracted by the U.S. Department of State (DOS) Office of Humanitarian De-mining Program in 2000, for provision of on-site technical assistance to the Mozambican National Institute of De-mining (IND) at the request of the IND.[936] RONCO used twelve MDDs in assistance operations for the IND. Main focus of the operation was the clearance of areas on and around the Sena Railway Line. RONCO, with the cooperation of Mozambique Emergency De-mining Force (MEDF) and the employment of more than 200 Mozambicans, managed to clear more than 450 kilometers of railway line. When RONCO completed the clearance of railway line towards the end of 2002, they could finish clearance of more than seven million square meters of ground in other areas of Mozambique as well.[937]

RONCO also provided other mine-action-related services in Mozambique, including creating and assisting a QA capability for the IND, quality assessment of other de-mining organizations, and training of IND personnel in management and MRE.[938]

In April 2001 RONCO employed, equipped, and deployed a Quick Reaction De-mining Force (QRDF), based in Beira, Mozambique, to provide a worldwide rapid-response capability, under a contract with the U.S. Department of State's Office of Humanitarian De-mining Programs (now the Office of Weapons Removal and Abatement). The QRDF has four 10-man de-mining[939] teams comprised of Mozambican de-miners and they are supported by eight mine detection dog (MDD) teams. QRDF is capable of going into action within one week of receiving a warning order and stands ready to be deployed worldwide with an advance party within 48 hours, and the entire group is ready to deploy within 14 days of notification to provide immediate de-mining

936 *Mozambique: Rebuilding Lives and Infrastructure*, U.S. Dept. of State Website, http://usinfo.state.gov/journals/itps/0104/ijpe/mozambique.htm (accessed 7 November 2007).

937 *Mine Detection Dogs: An Integral Tool in RONCO Mine Clearance Operations*, Journal of Mine Action, Issue 7.1, April 2003, Website http://maic.jmu.edu/journal/7.1/features/ronco/ronco.htm, (accessed 7 November).

938 RONCO Website, http://www.roncoconsulting.com/interface/popup/split_content.php?cpath=hmc/pop_content/&file=000023&table=de-mining_activities (accessed 7 November 2007).

939 J.J. Scott, "One of a Kind: The Quick Reaction De-mining Force," *Journal of Mine Action*, Issue 6.2, 2002, http://maic.jmu.edu/Journal/6.2/notes/jjscott/jjscott.htm (accessed 6 November 2007).

assistance in emergency humanitarian landmine action requirements.[940] To date, the force has deployed four times—to Sri Lanka twice, to Sudan and, most recently, to Iraq. The QRDF's success depends largely on its experience. Its staff of de-miners, dog handlers, team leaders and management is comprised of long-standing RONCO employees, many of whom were initially trained by RONCO in the early 1990s in Mozambique.[941]

5) Eritrea: RONCO, funded by the U.S. State Department, established the Eritrean mine-detection dog capability, and in 2006 Eritrean De-mining Operation (EDO) had eighteen MDDs supported by manual de-mining teams. RONCO trained two de-mining companies, comprised of sixty[942] military personnel,[943] to operate the latest de-mining technology and equipment.[944] RONCO claims that those teams cleared more than two million square meters of land, removing almost 300 mines.[945]

6) Ethiopia: In February 2001, RONCO started to train almost 200 (two companies each comprised of 100 personnel) combatant engineers (after their release from the Ministry of National Defense) on humanitarian de-mining, under the U.S. Department of State's U.S.$1.6 million contract.[946] These two companies were given refresher training by RONCO at GERHUSERNAY and SEBYA in April 2002.[947] The De-mining units were continuously monitored and advised by RONCO during de-mining activities. This advising function was carried out by technical advisors assigned to

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940 Roberts, *The Quick Reaction Demining Force*.

941 Lundberg, Reflecting on 10 Years of RONCO Operations in Mine Action.

942 Bob Kudyba, "Ethiopia and Eritrea Mine Action Coordination Center: UNMEE-MACC," *Journal of Mine Action*, Issue 6.1, 2002, Website, http://maic.jmu.edu/Journal/6.1/focus/kudyba/kudyba.htm (accessed 7 November 2007).

943 The Role of Mine Action in Victim Assistance, GICHD, Geneva, July 2002, 51, Web, http://www.gichd.org/fileadmin/pdf/publications/Role_MA_in_VA.pdf, (accessed 7 November 2007).

944 Journal of Mine Action, Website http://maic.jmu.edu/Journal/10.1/profiles/eritrea/eritrea.htm, (accessed 7 November 2007).

945 RONCO/Eritrea Website, http://www.roncoconsulting.com/hmc/activities.html (accessed 7 November 2007).

946 Forced Migration Website, http://www.forcedmigration.org/guides/fmo033/fmo033.pdf (accessed 7 November 2007).

947 UNITED NATIONS, United Nations Mission in Ethiopia and Eritrea, Near Verbatim Press Briefing Transcript Of 5 April 2002, 2, Website, http://www.un.org/Depts/dpko/unmee/pc050402.pdf (accessed 7 November 2007).

the de-mining units. At the end, the units trained by RONCO cleared almost two million square meters of mine contaminated area, and de-mined nearly 400 mines during the assistance period.[948]

7) Iraq: RONCO created and trained Iraqi Mine/UXO Clearance Organization (IMCO) between 2003 and 2004 on behalf of the U.S. Department of State, and helped Iraqi government to develop the National Mine Action Authority within the Iraqi Ministry of Planning. This organization has since developed national mine action standards, accredited all mine action organizations in Iraq, created a national mine action strategy, and drafted a national budget and work plans.[949]

Four teams of QRF were tasked to deploy to Iraq by the direction of the Department of State. RONCO deployed four QRDF teams to Iraq on May 3, 2003, to provide de-mining and BAC assistance to the Office of Reconstruction and Humanitarian Assistance (ORHA). RONCO managed to deploy sixty personnel, eight MDDs and eight tons of necessary tools over 8,000 miles via charter air in only 36 hours. The QRDF quickly initiated BAC activities and de-mining tasks in and around the capital of Baghdad only three days after its arrival. Under the direct supervision of RONCO, the QRDF managed to safely clear almost 1.2 million sq m of land, which yielded over 2,000 mines and UXO from BAC. On August 27, 2003, the QRDF teams returned to their home base in Mozambique.[950]

In March 2005, RONCO was awarded another contract by the Multi-National Security Transition Command–Iraq, through the Department of State's IMAS contract, to provide EOD training and assistance services to develop up to four Iraqi National Guard EOD companies. RONCO tapped its instructional cadre from the staff they used in the formation of IMCO. The RONCO/IMCO staff trained up to 200 trainees at a time on practical and technical subjects in leadership, basic trauma life support, and EOD Levels I, II and III. RONCO also trained and employed a security

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948 RONCO Website, http://www.roncoconsulting.com/interface/popup/interface.php?area=hmc&label=demining activites&sidebar=1&scontent=Iraq&table=demining_activities&content=000017 (accessed 7 November 2007).

949 Lundenberg, Reflecting on 10 Years of RONCO Operations in Mine Action.

950 Roberts, *The Quick Reaction De-mining Force*.

force at its training facility in Iraq. RONCO enlarged its training facilities and increased the number of personnel in December 2005 after being awarded for a new contract for provision of EOD, improvised-explosive-device disposal (IED) and instructor training to the Iraqi Army and Police to further respond to threats caused by bombs and IEDs throughout Iraq.[951]

8) Kosovo: On 11 June 1999, the U.S. State Department awarded a contract to RONCO to clear mines and UXOs in Kosovo. The contract provided short-term emergency de-mining support at a total cost of about $1.6 million, funded from the U.S. Saving for Education, Entrepreneurship, and Down payment (SEED) account.[952]

RONCO executed an UXO Clearance and Verification Program in Kosovo, using six clearance teams from Mozambique to carry out UXO removal operations in 2000 and 2001. At the end of its clearance activities in the U.S.-controlled Multi-National Brigade East Sector in 2000, RONCO cleared the entire East Sector of mines and UXOs—almost two million square meters of land. Following the tasks received from the United Nations Mine Action Coordination Center (UNMACC) to work in Multi-National Brigade Center, North, and later in the South in 2001, RONCO cleared 3,903 lethal munitions and two million square meters of land.[953]

9) Sudan: RONCO has been carrying out de-mining, survey and EOD operations in southern Sudan[954] for five years.

RONCO initially deployed QRDF to Sudan first in April 2002, following the ceasefire agreement. The QRDF cleared the road between the villages of Um Sirdibba and Kauda, a total of 50,208 square meters of land, and a UXO-

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951 Stacy L. Smith, "RONCO's Response to Explosive Remnants of War in Post-conflict Environments," *Journal of Mine Action*, Issue 10.1, August 2006, Website, http://maic.jmu.edu/JOURNAL/10.1/feature/smith/smith.htm (accessed 8 November 2007).

952 Human Rights Watch Website, http://www.hrw.org/reports/2000/uslm/USALM007-08.htm (accessed 8 November 2007).

953 RONCO/Kosovo Website, http://www.roncoconsulting.com/interface/popup/interface.php?area=hmc&label=demining activites&sidebar=1&scontent=Kosovo&table=demining_activities&content=000019 (accessed 8 November 2007).

954 John Lundberg, "A Firm Foothold: RONCO Operations in Sudan," *Journal of Mine Action*, Issue 10.1, August 2006, Website, http://maic.jmu.edu/Journal/10.1/focus/lundberg/lundberg.htm (accessed 8 November 2007).

contaminated area around the Military Commission (JMC) location in Kaudahas; it returned to its base in Mozambique in June 2002.[955]

In 2003, RONCO sent two teams to Sudan to assist ongoing Joint Military Commission JMC initiatives in the Nuba Mountains. Although these teams were contracted by separate sponsors—the U.N. and the State Department—both of them were tasked with the provision of direct support to the Joint Military Commission (JMC). The U.N. team, which had fifteen de-miners and four MDDs, was sent on January 25, 2003 and started to de-mine on February 17, 2003, whereas the State Department team, with twelve de-miners and two MDDs, was sent on March 24, 2003. These two teams cleared more than 100 kilometers of road leading to several villages.[956]

RONCO was again tasked in May 2005 by UNMAO to support the deployment of peacekeeping operations in Sudan.[957] In June 2005, RONCO deployed two international clearance teams[958], as well as a training team, to conduct emergency clearance tasks and gave EOD and BAC training to Sudanese teams for UNMAO tasks in both Rumbek and Malakal. In just one month, this force became fully operational.[959] It had established a liaison office in Khartoum, completed recruitment of local nationals, and established two base camps in Malakal and Rumbek RONCO was then tasked in July 2005 to train and send its teams into Juba, Wau and Damazin. Survey, ground preparation, battle area clearance, mine detection dogs and mine risk education (MRE) capacities were added in Juba and Damazin, and one survey team was deployed to Wau in October 2005. The Damazin MRE team was situated in Malakal by 2006. By January 2006, RONCO had seventeen teams working on UNMAO tasks

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955 Landmine Monitor 2003 Report, Website, http://www.icbl.org/lm/2003/sudan (accessed 8 November 2007).

956 RONCO/Sudan Website, http://www.roncoconsulting.com/interface/popup/interface.php?area=hmc&label=de-mining activites&sidebar=1&scontent=Sudan&table=de-mining_activities&content=000030 (accessed 8 November 2007).

957 Lundberg , "A Firm Foothold: RONCO Operations in Sudan."

958 Landmine Monitor Website, http://www.icbl.org/lm/2006/sudan (accessed 8 November 2007).

959 Lundberg , "A Firm Foothold: RONCO Operations in Sudan."

The comprehensive list of all those included in the mine action (National/International Organizations, Corporate firms, Academic Institutions and NGOs/INGOs) are provided below:

F. LIST OF ORGANIZATIONS DEALING WITH LAND MINES[960]

Table 25. Academic Organizations Dealing with Land Mines

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
1	American University Center for the Global South (CGS)	Academic	Mine Risk Education,	USA
2	Applied Physics Institute WKU	Academic	Research and Technology	USA
3	Argonne National Laboratory (DOE)	Academic	Research and Technology	USA
4	Assistance to Mine-Affected Communities (AMAC)	Academic	Research and Technology	Afghanistan, Angola,
5	Auburn University, Department of Electrical Engineering	Academic	Research and Technology	USA
6	Baltic International Centre for Human Education	Academic	Mine Risk Education	Latvia
7	British Medical Journal (BMJ)	Academic	Other,	United Kingdom
8	C.P.A.D.D. (Centre de Perfectionnement aux Actions post-conflictuelles de Déminage et Dépollution)	Academic	Clearance and Detection,	Benin, Burkina Faso,
9	Canadian Landmine Research Network	Academic	Mine Risk Education,	Canada
10	Carnegie Mellon University	Academic	Clearance and Detection	USA
11	Center for Disaster and Humanitarian Assistance Medicine	Academic	Humanitarian Coordination,	Eritrea, Ethiopia,
12	Center for Security Studies & Conflict Research	Academic	Research and Technology	
13	Chalmers University of Technology	Academic	Research and Technology	Sweden
14	Colorado State University	Academic	Research and Technology	USA

960 Data gathered and arranged from James Madison University Global Mine Action Registry, Website http://www.maic.jmu.edu/gmar/search.asp (accessed 22 October 2007).

15	Cooperative Research Center for Sensor Signal and Information Processing	Academic	Research and Technology	Australia
16	Cranfield Mine Action Unit (CMA), Cranfield University	Academic	Research and Technology	United Kingdom
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
17	Danish Engineer and NBC School (DANDEC)	Academic	Mine Risk Education,	Denmark
18	Duke University	Academic	Research and Technology	USA
19	ELOHIM PEREZIM De-mining Research Centre	Academic	Awareness,	South Africa
20	ETRO dept. Vrije Universiteit Brussel	Academic	Clearance and Detection,	Belgium
21	EUDEM2	Academic	Clearance and Detection,	Belgium
22	EXPLODET Collaboration	Academic	Research and Technology	Italy
23	Fachschule des Heeres fuer Technik	Academic	Research and Technology	Germany
24	Faculty of Health Sciences, Queen's University	Academic	Mine Risk Education	Canada
25	Fraunhofer Institut	Academic	Research and Technology	Germany
26	Gaston Z. Ortigas Peace Institute/Ateneo de Manila University	Academic	Humanitarian Coordination	Philippines
27	Georgia Institute of Technology	Academic	Research and Technology	USA
28	Global Care Unlimited	Academic	Other	Bosnia-Herzegovina
29	Global Environmental Change and Human Security, University of California, Irvine (GECHS-UCI)	Academic	Research and Technology	USA
30	Greenwich University	Academic	Other	United Kingdom
31	Indonesia Peace, Arms Control & Disarmament Institute	Academic	Advocacy and Diplomacy,	Indonesia

32	Institut für Experimentalphysik III, Ruhr-Universität Bochum	Academic	Research and Technology	Germany
33	Institut für Höchstfrequenztechnik und Elektronik (IHE)	Academic	Research and Technology	Germany
34	Institute for Conflict Analysis and Resolution (ICAR), George Mason University	Academic	Other	USA
35	Institute for Peace & Conflict Studies	Academic	Other	Afghanistan, Bangladesh,
36	Institute for Practical Research	Academic	Research and Technology	Other, Somalia
37	International Centre for Telecommunications-Transmissions and Radar (IRCTR)	Academic	Research and Technology	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
38	International Institute for Geo-Information Science and Earth Observation (ITC)	Academic	Clearance and Detection	Cyprus, Mozambique
39	Iowa State University	Academic	Research and Technology	USA
40	Kaliningrad State University	Academic	Research and Technology	Russian Federation
41	MAIC at JMU	Academic	Awareness,	USA
42	Massachusetts Institute of Technology	Academic	Research and Technology	USA
43	McMaster University	Academic	Research and Technology,	Canada
44	Messiah College Landmine Action Project	Academic	Clearance and Detection,	USA
45	Mine Action Academy	Academic	Mine Risk Education,	Croatia
46	Monash University	Academic	Research and Technology	Australia
47	Monash University Malaysia	Academic	Clearance and Detection,	Malaysia
48	National Center for Physical Acoustics/The University of Mississippi	Academic	Research and Technology	USA
49	National Chengchi University	Academic	Other	Taiwan

50	National Council for the Social Studies	Academic	Mine Risk Education	USA
51	New Mexico Institute of Mining and Technology	Academic	Research and Technology	USA
52	Ohio State University ElectroScience Laboratory (ESL)	Academic	Research and Technology	USA
53	Purdue Research Foundation	Academic	Research and Technology	USA
54	Queen's University	Academic	Other,	Canada
55	Royal Military Academy of Belgium	Academic	Research and Technology	Belgium
56	School of Mechanical Engineering, The University of Western Australia	Academic	Research and Technology	Australia
57	Stevens Institute of Technology	Academic	Research and Technology	USA
58	Swiss Federal Institute of Technology - Lausanne	Academic	Other,	Switzerland
59	Swiss Federal Institute of Technology - Zurich	Academic	Other,	Switzerland
60	Technical University of Denmark	Academic	Research and Technology	Denmark
61	test2	Academic	Advocacy and Diplomacy,	Angola
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
62	Texas A&M Int. UXO Training Program	Academic	Clearance and Detection,	USA
63	The University of Western Australia, School of Mechanical Engineering	Academic	De-mining Equipment,	Australia
64	Third World Studies Center (TWSC)	Academic	Mine Risk Education,	Philippines
65	Uniformed Services University of Health Sciences	Academic	Other	USA
66	University of Alabama in Huntsville	Academic	Research and Technology	USA
67	University of Alberta	Academic	Research and Technology	Canada
68	University of Auckland	Academic	Research and Technology	Australia

69	University of Balamand Landmines Resource Center (LMRC)	Academic	Mine Risk Education,	Iraq, Jordan,
70	University of Brescia	Academic	Research and Technology	Italy
71	University of Bristol	Academic	Research and Technology	United Kingdom
72	University of Cape Town	Academic	Research and Technology	South Africa
73	University of Denver Center for Teaching International Relations (CTIR)	Academic	Awareness,	USA
74	University of Edinburgh	Academic	Research and Technology	United Kingdom
75	University of Florence	Academic	Research and Technology	Italy
76	University of Florida	Academic	Research and Technology	USA
77	University of Kansas	Academic	Research and Technology	USA
78	University of Los Andes, Electrical Engineering Dept.	Academic	Research and Technology	Colombia
79	University of Missouri-Columbia	Academic	Research and Technology	USA
80	University of Missouri-Rolla	Academic	Clearance and Detection,	USA
81	University of Nebraska-Lincoln	Academic	Research and Technology	USA
82	University of Ottawa Center for Executive Development	Academic	Other	Canada
83	University of Pennsylvania	Academic	Research and Technology	USA
84	University of Queensland	Academic	Research and Technology	Australia
85	University of Rhode Island	Academic	Clearance and Detection,	USA
86	University of Saskatchewan	Academic	Clearance and Detection,	Canada
87	University of Texas at Arlington	Academic	Research and Technology	USA
88	University of Virginia	Academic	Research and Technology	USA
89	University of Warwick	Academic	Research and Technology	United Kingdom

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
90	University of Zimbabwe (Centre for Defence Studies)	Academic	Research and Technology	Zimbabwe
91	Virginia Tech University	Academic	Research and Technology	USA

Table 26. Corporate Organizations Dealing with Land Mines

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
1	3d-Radar AS	Corporate	Multi-sensor	Norway
2	A.B.C. Appalti Bonifiche Costruzioni s.a.s	Corporate	Clearance and Detection,	Afghanistan, Albania, Armenia, Azerbaijan, Bosnia-Herzegovina, Burma (Myanmar), Chile, Croatia, Egypt, Eritrea, Honduras, Italy, Libya, Macedonia, FYR, Malta, Peru, Senegal, Suriname, Tunisia, Turkey, Yemen
3	Aardvark Clear Mine Ltd	Corporate	Clearance and Detection, mechanical minefield clearance machines	Afghanistan, Angola, Canada, Ireland, Jordan, Korea, Democratic People's Republic of (North), USA United Kingdom
4	ACTRA Rehabilitation Associates, Inc.	Corporate	orthotics and prosthetics	USA
5	aDeDe	Corporate	Clearance and Detection,	Belgium
6	Amey VECTRA Integrated Simulation and Analysis (ISA)	Corporate	Research and Technology	United Kingdom
7	AMK Export Import Consulting	Corporate	Clearance and Detection,	Turkey
8	AMK Risk Management	Corporate	Clearance and Detection,	Turkey

9	Amtech Aeronautical Limited	Corporate	mine products that can be used in the evaluation of de-mining equipment	Canada
10	Applied Ordnance Technology, Inc.	Corporate	Research and Technology	USA
11	Applied Research Associates (ARA)	Corporate	Research and Technology	Canada, USA
12	ArmorGroup Mine Action	Corporate	Clearance and Detection,	Albania, Bosnia-Herzegovina, Kosovo, Croatia, Cyprus, Sudan, Mozambique, Ethiopia, Angola, Iraq, Lebanon, Colombia, Cambodia, Sakhalin Island (Russia)
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
13	Asian Landmine Solutions (ALS)	Corporate	Clearance and Detection,	Cambodia, Laos, Thailand, Vietnam,
14	AVS Mine Action Consultants	Corporate	De-mining Equipment,	Afghanistan, Angola, Bosnia-Herzegovina, Cambodia, Croatia, Iraq, Kosovo- FYR, Mozambique, Namibia, United Kingdom, Zimbabwe
15	Babylon Gold	Corporate	Clearance and Detection,	Iraq
16	BACTEC International Limited	Corporate	Clearance and Detection,	Angola, Kuwait

17	Ballistic Body Armour (Pty) Ltd	Corporate	Research and Technology	Bosnia-Herzegovina, Botswana, China, Côte d'Ivoire, Croatia,Egypt,France,Greece,Hong Kong, Indonesia, Japan, Korea-People's Republic of (South), Mozambique, Nigeria,Sierra Leone, Singapore, South Africa, Swaziland, Taiwan, Uganda,United Kingdom,USA
18	Barringer	Corporate	explosive detector.	CA
19	Baric Consultants, Ltd.	Corporate	Clearance and Detection,	UK
20	Bayswater Consulting Group Inc.	Corporate	Research and Technology	Canada
21	Bergerac International, Ltd.	Corporate	Other	USA
22	BIGAT GmbH Waste Processing Technology Engineering Ltd.	Corporate	Other	Germany
23	Biokinetics and Associates Ltd.	Corporate	Research and Technology	Canada
24	Bofors	Corporate		Sweden
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
25	Bombs Away	Corporate	Clearance and Detection,	Cambodia, Guam, Japan, Laos, Malaysia, Marshall Islands, N. Mariana Islands, Philippines, Taiwan, Thailand, Vietnam

26	Booz, Allen & Hamilton	Corporate	Research and Technology	Argentina, Australia, Austria, Brazil, Chile, China, Colombia, Denmark, Finland, France, Germany, India, Indonesia, Italy, Japan, Korea, People's Republic of (South), Lebanon, Malaysia, Mexico, Netherlands, New Zealand, Norway, Russian Federation, Singapore, Spain, Sweden, Switzerland, Thailand, United Arab Emirates, United Kingdom, Venezuela
27	Brooks enterprise International, Inc.	Corporate		USA
28	BRTRC Technology Research Corp.	Corporate	Research and Technology	USA
29	C King Associates Ltd	Corporate	Clearance and Detection,	United Kingdom
30	Camber Corporation	Corporate	Research and Technology	USA
31	Canadian Sensors & Software Inc.	Corporate	Radar	Canada

32	CEIA SpA	Corporate	Clearance and Detection,	Afghanistan, Angola, , Bosnia-Herzegovina,Burundi,Cambodia,Chad,Colombia,Congo Democratic Republic, Croatia, Denmark,Djibouti,Egypt, Eritrea,Ethiopia, Finland, France, India, Iraq, Italy, Japan, Lebanon, Mozambique, Namibia,Pakistan,Singapore,S.Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Thailand, Turkey,Ukraine, USA, Venezuela, Vietnam, Yemen, Zimbabwe
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
33	CEIA USA	Corporate	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,
34	Celsius, AB	Corporate		Sweden
35	CGTVA	Corporate	Clearance and Detection,	Croatia, Mozambique,
36	Chaning L. Bete Co. Inc.	Corporate	Other	USA
37	Chilport UK Ltd	Corporate	Clearance and Detection	Eritrea, Laos,
38	Chirgwin Services Group Pty Ltd	Corporate	Clearance and Detection	Australia, Cambodia,
39	CMS Environmental, Inc.	Corporate	Other	USA
40	COMARCO	Corporate		USA
41	Computing Devices Canada	Corporate		Canada
42	Concept Engineering Group, Inc.	Corporate	Clearance and Detection,	USA
43	Concurrent Technology Corporation	Corporate	Clearance and Detection,	Belgium, Germany,

44	Corporate Security International, Inc.	Corporate	Other	USA
45	Cortex Engineering ltd	Corporate	Awareness,	Israel
46	Costruzioni Apparecchiature Elettroniche Nucleari S.p.A.	Corporate	Detection and Imaging of Antipersonnel Landmines by Neutron Backscattering	Italy
47	Countermine	Corporate	Mine Clearance	UK
48	Critical Solutions International	Corporate	Clearance and Detection,	Afghanistan, Iraq
49	CSG De-mining Consultants	Corporate	Clearance and Detection,	Afghanistan, Australia,
50	CyTerra Corporation	Corporate	Clearance and Detection,	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
51	D-EOD Consulting	Corporate	EMI - Metal Detectors, Environmental Impact, Neutralization / Disposal, Vegetation Clearance	South Africa
52	D&M "SLASHBUSTER"® Vegetation Clearance Equipment	Corporate	De-mining Equipment	USA
53	Daimler-Benz AG	Corporate		Germany

54	Danish Defense Research Establishment	Corporate		Denmark
55	DANMINAR A/S	Corporate	Awareness,	Afghanistan, Albania,
56	DARPA/DSO	Corporate	Research and Technology	USA
57	DC Comics	Corporate	Mine Risk Education	Bosnia-Herzegovina, Costa Rica,
58	De-mining Systems UK Ltd	Corporate	Clearance and Detection,	UK
59	DEMEX A/S	Corporate	Awareness,	Denmark
60	Deutsche Forschungsgemeinschaft	Corporate	Research of TNT for humanitarian de-mining	Germany
61	Deutsche Gesellschaft für Technische Zusammenarbeit/German Agency for Technical Cooperation	Corporate	Humanitarian Coordination,	Mozambique
62	Development in Democracy	Corporate		USA
63	DFI International	Corporate	Research and Technology	USA
64	Diehl BGT Defence GmbH & Co. KG	Corporate	Clearance and Detection,	Germany
65	Diehl Stiftung & Co.	Corporate	Research and Technology	Germany
66	Digger DTR, De-mining Tech.	Corporate	Vegetation Clearance	Switzerland
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
67	DOK-ING d.o.o.	Corporate	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,
68	Duro Dakovic Special Vehicles	Corporate	De-mining Equipment	Croatia

69	Dynamic Systems, Inc.	Corporate	Research and Technology	USA
70	Dynawave Incorporated	Corporate	Clearance and Detection,	USA
71	Dynetics, Inc.	Corporate	Research & technology	USA
72	DYNMERIDIAN	Corporate	Research and Technology	USA
73	Dyno Nobel Danmark A/S	Corporate	De-mining Equipment	Denmark
74	E&I International Ltd.	Corporate	Advocacy and Diplomacy,	Afghanistan, Angola,
75	E&I MKD Corp	Corporate	Advocacy and Diplomacy,	Afghanistan, Azerbaijan,
76	Ebinger Prüf- und Ortungstechnik	Corporate	Research and Technology	Germany
77	ECC, Munitions Response Services	Corporate	Clearance and Detection,	USA
78	Electron Optical Services (EOS) Ltd	Corporate	Research and Technology	UK
79	Elegant Designs and Solutions	Corporate	Survivor and Victim Assistance	UK
80	EMRAD	Corporate	Radar	UK
81	Emergency Film Group	Corporate	Other	USA
82	EMERKOM of Russia	Corporate	Humanitarian Coordination	Russian Federation
83	EOD Tech Inc.	Corporate	Clearance and Detection,	Afghanistan, Germany,
84	EPPRA sas	Corporate	dual sensor system for the detection and identification of buried landmines	France
85	ERA Technology	Corporate	Research and Technology	UK
86	ERSAY TRANSPORT	Corporate	Advocacy and Diplomacy,	Afghanistan, Armenia,

87	European Commission SDME 10/28	Corporate	Other	Belgium
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
88	European Land Solutions Limited	Corporate	Awareness,	Afghanistan, Angola,
89	Explosive Countermeasures International, Inc.	Corporate	Other	USA
90	Explosive Threat Assessment	Corporate		USA
91	Explotech Ltd.Co.	Corporate	Clearance and detection,	USA
92	Export Capital LLC	Corporate	Other	Ecuador
93	Federal Explosive Technologies	Corporate	Research & technology	USA
94	FGM, Inc.	Corporate	Research & technology	USA
95	Fieldworker Products Limited	Corporate	Research & technology	CA
96	FIRMA	Corporate	Other	Germany
97	Flensburger Fahrzeugbau Gesellschaft mbH	Corporate	Research & technology	Germany
98	Fluid Gravity / Applied Electromagnetics	Corporate	surface penetrating radar detector	UK
99	FOA De-mining Project	Corporate	Research & technology	Sweden
100	Foerster Instruments Inc. - Landmine and UXO Detection Instruments	Corporate	Clearance and Detection,	USA

101	ForceWare GmbH	Corporate	Research & technology	Germany
102	Förderkreis der Wirtschaft St. Barbara	Corporate	Clearance and Detection,	Angola
103	Foster Wheeler Environmental	Corporate	Clearance and Detection,	USA
104	GEC Marconi	Corporate	Clearance and Detection	UK
105	General Engineering	Corporate	Research & technology	Italy
106	Geo-Centers	Corporate	Research & technology	USA
107	Geosoft Inc.	Corporate	GIS and Mapping,	Australia, Brazil,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
108	GEOSPACE Beckel Satellitenbildd aten GmbH	Corporate	AdvaNced Global system to Eliminate antipersonnel Landmines - Eureka, Airborne Minefield Area Reduction	Austria
109	GERBERA GmbH	Corporate	Research and Technology	Germany
110	Gesellschaft zur Erfassung und Bereinigung von Altlasten mbH	Corporate	mine clearance	Germany
111	Giat Industries	Corporate	Clearance and Detection,	France
112	Global Co., Ltd.	Corporate	Clearance and Detection,	Japan
113	Global Mine Detection, LLC	Corporate	Clearance and Detection	USA
114	Global Statistics, Inc.	Corporate	Advocacy and Diplomacy,	USA
115	Global Training Academy	Corporate	Clearance and Detection,	USA

116	Golden West Products International	Non Profit	Neutralization / Disposal	USA
117	Ground Sift and Clear Systems Limited	Corporate	Clearance and Detection	UK
118	Guartel Technologies Ltd	Corporate	Clearance and Detection,	UK
119	Guelle Mine Action Consulting GMAC GmbH	Corporate	Awareness,	Germany, Mozambique
120	Heartlands Group	Corporate	Research and Technology	USA
121	Hewlett Packard	Corporate	Other	USA
122	Hirdes GmbH	Corporate	Clearance and Detection,	Germany
123	HMT Insurance Brokers, Ltd.	Corporate	Other	UK
124	HUMAG Kft	Corporate	Clearance and Detection,	Hungary
125	Human Factors Applications, Inc. (HFA)	Corporate	Clearance and Detection,	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
126	Human Rights Advocates International, Inc.	Corporate	Humanitarian Coordination	Cambodia, Laos,
127	Humanitaeres Minenraeumen /Humanitarian De-mining, Consultant	Corporate	Clearance and Detection,	Bosnia-Herzegovina
128	Hungarian Mine Action Group (HUMAG Kft.)	Corporate	Mine Clearance	Hungary

129	HYDREMA	Corporate	Clearance and Detection,	Denmark, Germany,
130	IABG-Industrieanlagen-Betriebsgesellschaft mbH	Corporate	Research and Technology	Germany
131	ICT	Corporate	Mine Risk Education	USA
132	Industrieberatung	Corporate		Germany
133	Industry Canada	Corporate	Other,	CA
134	Information International Associates, Inc.	Corporate	Research and Technology	USA
135	Ingegneria dei Sistemi SpA	Corporate	Multi-sensor, Radar	Spain
136	Ingenieria de Sistemas y de Software SA	Corporate	Data Fusion	Spain
137	Information Systems Labs	Corporate	Research and Technology	USA
138	Institut Dr. Foerster GmbH & Co. KG	Corporate	Research and Technology	Afghanistan, Argentina,
139	Institut für Umwelttechnologien GmbH	Corporate	Bulk explosive, EMI - Metal Detectors, Trace explosive	Germany
140	Inter-Continental Safety Systems Inc. (ISS)	Corporate	De-mining Equipment,	Canada
141	INTERMA-CONSULTING	Corporate	Research and Technology	German
142	International Linkages	Corporate		DENMARK
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation

143	International Machinery Corporation	Corporate		USA
144	International School for Search ant Explosives Engineers (ISSEE), UK	Corporate	commercial De-mining training centre	UK
145	Israel Aircraft Industries Ltd.	Corporate	Low-risk Efficient Area Reduction based on the Fusion of Advanced Sensor Technologies	Israel
146	ISSI UXO, Inc.	Corporate		USA
147	Istanbul	Corporate	Clearance and Detection,	Turkey
148	IXL Satelliteninformations-Aktiengesellschaf	Corporate	Space- and Airborne Mined Area Reduction Tool	Germany
149	Japan Science and Technology Agency (JST)	Corporate	Clearance and Detection,	Japan
150	Johanniter-Unfall-Hilfe e.V.	Corporate	Mine Risk Education,	Germany
151	Kaman Diversified Tech Corp.	Corporate		USA
152	Karl Schollenberger Kampfmittelräumung GmbH & Co	Corporate	Clearance and Detection	Germany
153	Kayser-Threde GmbH	Corporate	Multi-Sensor Mine Signature Measurement Campaign	Germany

154	Krohn	Corporate	mechanical systems for forestry, land sanitation purposes and mine clearance.	Germany
155	KIMAQS Co.,Ltd	Corporate	Program Management and Coordination,	Cambodia
156	Koch-Munitionsbergungs-GmbH	Corporate		Germany
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
157	LABBLEE Corporation	Corporate	Research and Technology	USA
158	LABEN S.p.A.	Corporate	Detection and Imaging of Antipersonnel Landmines by Neutron Backscattering	Italy
159	LEXON Technologies, LLC	Corporate	Clearance and Detection,	USA
160	Lindauer DORNIER GmbH	Corporate	AdvaNced Global system to Eliminate antipersonnel Landmines - Eureka	Germany
161	LNY Services Co.	Corporate	Clearance and Detection,	USA
162	Lockheed Martin Corporation	Corporate	Research and Technology	USA
163	Lockwood Beck Limited	Corporate	Clearance and Detection,	United Kingdom
164	Lotus Security Equipments	Corporate	De-mining Equipment,	India
165	LVP Technology	Corporate	Research and Technology,	Afghanistan, Angola,
166	Maavarim - Civil Engineering LTD.	Corporate	Clearance and Detection,	Albania, Angola,
167	MACC International Ltd	Corporate	Awareness,	Bosnia-Herzegovina, Croatia,

168	MaK Systems GmbH	Corporate	Vehicle-Mounted Close-in Mine Detection System	Germany
169	Management Support Technology, Inc. (MSTI)	Corporate	Research and Technology	USA
170	Manufactured Lightning Inc.	Corporate	Clearance and Detection,	USA
171	Marbach Consulting Group	Corporate	Research and Technology	Canada
172	Mechem Consultants	Corporate	Clearance and Detection,	Afghanistan, Angola,
173	Med-Eng Systems Inc.	Corporate	Clearance and Detection,	Afghanistan, Armenia,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
174	MEODAT Messtechnik, Ortung und Datenverarbeitung GmbH	Corporate	surface penetrating radar detector	Germany
175	Midas Data Systems	Corporate	Research and Technology,	UK
176	Mine Action & Clearance Centre Malaysia Sdn Bhd	Corporate	Awareness,	Azerbaijan, Bahrain,
177	Mine Action Associates	Corporate	Advocacy and Diplomacy,	Angola, Bosnia-Herzegovina,
178	Mine Action International Ltd.	Corporate	Clearance and Detection,	Afghanistan, Armenia,
179	Mine Action Iran	Corporate	Clearance and Detection,	Iran
180	Minelab	Corporate	Clearance and Detection,	Australia
181	MINELINK(PVT)LTD	Corporate	Awareness,	Angola, Burundi,
182	MinePro cv	Corporate	Awareness,	Netherlands
183	MINERGY LIMITED	Corporate	Other	UK

184	MineWolf Systems	Corporate	De-mining Equipment,	Angola, Bosnia-Herzegovina,
185	Mintech Consultoria e Serviços	Corporate	Clearance and Detection,	Angola, Cameroon,
186	MKA*DEMING Ltd.	Corporate	Clearance and Detection	Croatia, Serbia
187	MkII International	Corporate	Clearance and Detection	USA
188	Monsanto	Corporate	Other	USA
189	Motorwagenfabrik AG	Corporate	Other,	Switzerland
190	MPWD Limited	Corporate	Clearance and Detection,	Angola, Belgium,
191	MREL Specialty Explosive Products Limited	Corporate	Clearance and Detection,	Canada
192	MTB Management Ltd.	Corporate	Other	UK
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
193	National Defence Research Establishment	Corporate	Other,	Sweden
194	Naval Research Laboratory	Corporate	Research and Technology	USA
195	NeuriCam S.p.A.	Corporate	Detection and Imaging of Antipersonnel Landmines by Neutron Backscattering	ITALY
196	NEWTEC	Corporate	Clearance and Detection,	USA
197	Niagara Prosthetics & Orthotics Corporation	Corporate	Research and Technology,	Cambodia, El Salvador,
198	NOKSH	Corporate		Norway
199	Nomadics, Inc.	Corporate	Other,	USA

200	Northrup Grumman - Maryland	Corporate	Other,	USA
201	Norwegian De-mining Consortium (NoDeCo)	Corporate	Clearance and Detection,	Afghanistan, Croatia,
202	OC, Inc.	Corporate	Other,	USA
203	OCEAN EOD DIVISION	Corporate	Clearance and Detection,	CA
204	Olive Branch Society	Corporate	Advocacy and Diplomacy,	USA
205	Omega Contact International	Corporate	Other	Japan
206	Omega Foundation	Corporate	Other	United Kingdom
207	Omnitech Robotics, Inc.	Corporate	Other,	USA
208	Ordnance Disposal International	Corporate	Neutralization / Disposal	USA
209	Orthopedie Delcros S A	Corporate	Other	Algeria, France,
210	Pearson Engineering, Ltd.	Corporate	De-mining Equipment,	UK
211	Penetradar Corporation	Corporate	high resolution, Ground Penetrating Radar	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
212	Pharmacom Corporation	Corporate	Research and Technology	China, USA
213	Phoenix Clearance Ltd	Corporate	Awareness,	Cambodia, Laos
214	Planit EOD	Corporate	Clearance and Detection,	UK
215	PLANIT EOD Limited	Corporate	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,
216	Planning Systems Incorporated	Corporate	Other	USA
217	Ploughshare Technologies	Corporate	Research and Technology	USA

218	PriceWaterhouseCoopers Ulysses	Corporate	Leadership Development Program	Belgium
219	Primex Technologies	Corporate	Other,	USA
220	ProDive Solutions	Corporate	Awareness,	Angola, Congo, Democratic Republic of the,
221	PRO MAC Manufacturing Ltd.	Corporate	Vegetation Clearance	CA
222	Prosthetic Consulting	Corporate	Prosthetics,	Denmark, France,
223	QinetiQ	Corporate	Clearance and Detection,	United Kingdom
224	Qualissol Consultants	Corporate	Clearance and Detection,	Albania, Angola,
225	QuantiTech Inc.	Corporate	Other	USA
226	Quantum Magnetics	Corporate	Other,	USA
227	Quick Reaction Corporation	Corporate	Research and Technology	USA
228	Radar Systemtechnik AG	Corporate	Space- and Airborne Mined Area Reduction Tool	Germany
229	Radio Free Asia	Corporate	Other	Taiwan
230	Raytheon	Corporate	Research and Technology	USA
231	REASeuro WORLDWIDE Ltd	Corporate	Clearance and Detection,	Angola, Belgium,
232	Regency Clinical Research	Corporate	Clearance and Detection,	Egypt
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
233	Remediation Technologies	Corporate	Other,	USA
234	Remote Sensing Centre Potsdam	Corporate	Research and Technology	Germany

235	Research Energy of Ohio, Inc.	Corporate	Other,	USA
236	Research Planning, Inc.	Corporate	Other,	USA
237	RheinMetall LandSysteme	Corporate	Research and Technology	Germany
238	RK Consulting	Corporate	landmine clearance, EOD and landmine clearance (de-mining) consulting	UK
239	Robotic Systems Technology	Corporate	Other,	USA
240	Rohde & Schwartz, Inc.	Corporate	Other,	USA
241	RONCO Consulting Corporation	Corporate	Clearance and Detection,	Afghanistan, Albania,
242	RU-RU d.o.o.	Corporate	Awareness,	Croatia, Sudan
243	RU-RU-DOK-ING Ltd Sudan	Corporate	Awareness,	Croatia, Sudan
244	S-3 Services, Inc.	Corporate	Clearance and Detection,	Mozambique, Thailand
245	S. Cohen & Associates, Inc. (SC&A)	Corporate		USA
246	S3 AG	Corporate	Awareness,	Afghanistan, Angola,
247	SAA International	Corporate	De-mining Equipment,	Afghanistan, Iraq
248	Safe Seas International	Corporate	Clearance and Detection,	Afghanistan, France,
249	SAIC - Safety and Security Instrument Operation	Corporate	Clearance and Detection,	USA
250	SAIC-MS 1-6-2	Corporate	Humanitarian Coordination,	USA
251	SAIC/Defense Analysis Group	Corporate		USA
252	Samad Rubber Works (Pvt.) Ltd.	Corporate	Clearance and Detection,	Cambodia, Kuwait,

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
253	Scandinavian De-mining Group	Corporate	Clearance and Detection,	Croatia, Sweden
254	Schiebel - Mine Detection and Unmanned Aerial Vehicles	Corporate	Other,	USA
255	Science Applications International Corporation	Corporate	Clearance and Detection,	USA
256	SCOUT Technologies, Inc.	Corporate	Clearance and Detection,	USA
257	Securatec	Corporate	Special-dogs, education, security service	Germany
258	Sensing Devices, Inc.	Corporate	Research and Technology	USA
259	SENSYS	Corporate	Clearance and Detection,	Germany
260	Shadow Robot Project	Corporate	Research and Technology	United Kingdom
261	Sky Research, Inc.	Corporate	Clearance and Detection,	USA
262	Smiths Industries	Corporate	Other	USA
263	Southwest Research Institute	Corporate	Research and Technology	USA
264	SPARTA, Inc	Corporate	Clearance and Detection,	USA
265	Special Services Group International Inc	Corporate	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,
266	Special Services International (SSG)	Corporate	Clearance and Detection,	CA

267	SPEM Communicatio n Group	Corporate	Other	Slovenia
268	Star Mountain, Inc.	Corporate	Research and Technology	USA
269	Strategic Analysis Inc.	Corporate	Research and Technology	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
270	Strategic Financial Planning Systems, Inc.	Corporate	Clearance and Detection,	Afghanistan, France,
271	Strategic Programs	Corporate	Other	USA
272	Strategic Systems, Inc.	Corporate	Clearance and Detection,	Afghanistan, France,
273	Swaledale Consulting Group	Corporate	Other	USA
274	System Resources Corporation	Corporate	Research and Technology	USA
275	T&A Survey BV	Corporate	explosives subsurface research.	Netherlands
276	Tactical Medical Developments	Corporate	Survivor and Victim Assistance	South Africa
277	Tactical Training Institute	Corporate	Clearance and Detection,	Afghanistan, Andorra,
278	Thiokol Propulsion	Corporate	Neutralization / Disposal	USA
279	Thomson Technology Ltd. (Ttech)	Corporate	Research and Technology	CA
280	Threat Resolution Ltd	Corporate	Research and Technology,	Albania, Angola,
281	Topographic Engineering Center (TPPO)	Corporate	Other	USA

282	Tracor Aerospace, Inc.-Mine Countermeasures Div.	Corporate	Research and Technology	USA
283	Trademill De-mining	Corporate	Clearance and Detection,	Albania, Bosnia-Herzegovina,
284	Transimpex	Corporate	Clearance and Detection,	Ukraine
285	TRICON Geophysik und Systemtechnik, GmbH	Corporate	Other	Germany
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
286	TZN Forschungs- und Entwicklungszentrum	Corporate	Other	Germany
287	UNIEXPL LTD	Corporate	Clearance and Detection,	Croatia, Russian Federation
288	UXB International, Inc.	Corporate	Clearance and Detection	Bosnia-Herzegovina, Cambodia,
289	Vallon GmbH	Corporate	Clearance and Detection,	Belgium, Bulgaria,
290	Varljen Associates	Corporate	Other	USA
291	Viking Power Dozer	Corporate	earth tilling mechanical systems	USA
292	WADEM Landmine Taskforce	Corporate		Germany
293	Warner Brothers	Corporate	Mine Risk Education	USA
294	WAY INDUSTRY, a.s.	Corporate	Clearance and Detection,	Afghanistan, Albania,

295	X-Technologies	Corporate	Development and Optimization of a dual sensor system with real time digital signal processing for the detection and identification of buried landmines	France
296	Yard De-mining International	Corporate	Awareness,	Afghanistan, Congo, Democratic Republic of the,
297	YXLON International x-ray GmbH	Corporate	X-ray Backscatter Technology	Germany
298	ZAI Amelex	Corporate	Other	USA
299	Zeman	Corporate	Personnel	Czech Republic
300	Zeppelin Luftschifftechnik GmbH	Corporate	Space- and Airborne Mined Area Reduction Tool	Germany

Table 27. Government Agencies/Offices/Units Dealing with Land Mines

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
1	American Embassy - Hanoi	Government	Other	Vietnam
2	Atlantic Council of the United States	Government	Other	USA
3	Auswaertiges Amt (German Foreign Ministry)	Government	Other,	Germany
4	Botschaft Belgien (Belgian Embassy to Germany)	Government	Other	Germany
5	Bundesamt fuer Verteidigung (Swiss Ministry of Defense)	Government		
6	Bundesministerium der Verteidigung (BMVg)	Government	Other	Germany
7	Canadian Center for Mine Action Technologies (CCMAT)	Government	Research and Technology	Afghanistan, Bosnia-Herzegovina,
8	Canadian International Development Agency (CIDA)	Government	Clearance and Detection,	Canada
9	Center for Disease Control and Prevention (CDC)	Government	Survivor and Victim Assistance	USA

10	Colombian Air Force	Governme nt	De-mining Equipment,	Colombia
11	Composite Regional Centre	Governme nt	Survivor and Victim Assistance	
12	CSIR Defencetek	Governme nt	Research and Technology	
13	Danish Ministry of Foreign Affairs	Governme nt	Humanitarian Coordination	Afghanistan, Denmark,
14	DASD (PK/HA)	Governme nt	Other	USA
15	Department of Energy (U.S.)	Governme nt	Research and Technology	USA
16	Department of Foreign Affairs & International Trade (DFAIT)	Governme nt	Advocacy and Diplomacy	
17	Directorate of Mine Awareness	Governme nt	Awareness	
18	Embassy of the Republic of Haiti (Taiwan)	Governme nt	Other	Taiwan
19	Federal Ministry of Health - Bosnia and Herzegovina	Governme nt	Survivor and Victim Assistance	Bosnia-Herzegovina
20	FMV	Governme nt	Other,	
21	Foreign Affairs Canada	Governme nt	Clearance and Detection,	Canada
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
22	Foreign Relations Department of Quang Tri	Governme nt	Clearance and Detection,	Vietnam
23	Humanitarian De-mining Training Center (HDTC)	Governme nt	Humanitarian Coordination,	Azerbaijan, Iraq,
24	Instituto Nacional De Desminagem	Governme nt	Mine Risk Education,	Mozambique
25	Joint Research Centre (JRC) - European Commission	Governme nt	Research and Technology	
26	Korea Institute for Defense Analyses (KIDA))	Governme nt	Other	
27	Kuwait Institute for Scientific Research	Governme nt	Research and Technology	
28	Lao National Unexploded Ordnance Program (UXO LAO	Governme nt	Clearance and Detection,	Laos

29	Lawrence Livermore National Laboratory	Government	Research and Technology	USA
30	Legislative Yuan, Taiwan	Government	Other	Taiwan
31	Ministry of Coordination of Social Action (MICAS)	Government	Humanitarian Coordination,	Mozambique
32	Ministry of Defence, Finland	Government	Advocacy and Diplomacy	Finland
33	Ministry of Defense, Republic of Croatia	Government	Other	Croatia
34	Ministry of Foreign Affairs, Sweden	Government	Other	
35	National Defense Headquarters, CA	Government	Other	
36	National Defense Industrial Association	Government	Other	
37	National Geospatial-Intelligence Agency	Government	Survey	
38	National Humanitarian De-mining Program for development	Government	Advocacy and Diplomacy,	Mauritania
39	National Research Laboratory Remote Sensing Division	Government	Research and Technology	USA
40	Naval School EOD	Government	Clearance and Detection	
41	Oak Ridge National Laboratory	Government	Research and Technology	
42	Office of Science & Technology Policy - White House	Government	Other	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
43	Office of the Project Manager for Close Combat Systems, Countermine Division	Government	Clearance and Detection,	
44	Office of Transition Initiatives, USAID	Government	Other,	
45	Pan American Health Organization	Government	Other	
46	Peruvian Mine Action Center	Government	Advocacy and Diplomacy,	Peru

47	Regional Center for Underwater De-mining	Government	Clearance and Detection,	Bosnia-Herzegovina, Croatia,
48	Royal Norwegian Embassy	Government	Other	
49	Sandia National Laboratories	Government	Other,	
50	SIBAT Israel Ministry of Defense	Government	Other	Israel
51	Southern Africa Development Council (SADC)	Government	Other,	
52	Swedish Defence Research Agency	Government	Research and Technology	
53	Swedish Rescue Services Agency (SRSA)	Government	Other,	
54	Swiss General Staff	Government	Clearance and Detection,	
55	U.S. Agency for International Development (USAID)	Government	Other,	
56	U.S. Department of Defense	Government	Other,	
57	U.S. Institute of Peace	Government	Mine Risk Education,	
58	U.S. Mission to the UN	Government	Other	
59	U.S. State Department Office of Weapons Removal and Abatement (PM/WRA)	Government	Clearance and Detection,	
60	UK Department for International Development (DFID)	Government	Other	
61	Ukroboronservice	Government	Clearance and Detection,	Ukraine

Table 28. International Organizations Dealing with Land Mines

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
1	Comprehensive Disabled Afghan's Program (UNDP/UNOPS)	IO	Survivor and Victim Assistance	
2	European Commission Directorate General Information Society (DG-INFSO)	IO	Research and Technology	

3	European Community Humanitarian Office (ECHO)	IO	Humanitarian Coordination	Macedonia, FYR
4	European Union	IO	Clearance and Detection,	Afghanistan, Angola,
5	Food and Agriculture Organization of the United Nations	IO	Humanitarian Coordination,	
6	Geneva International Center for Humanitarian De-mining (GICHD)	IO	Advocacy and Diplomacy,	Afghanistan, Albania,
7	International Society for Prosthetics and Orthotics (ISPO)	IO	Research and Technology,	Argentina, Australia,
8	International Test & Evaluation Program for Humanitarian De-mining (ITEP)	IO	De-mining Equipment,	
9	Organization of American States (OAS)	IO	Advocacy and Diplomacy,	Colombia, Costa Rica,
10	Stabilization Force (SFOR)	IO	Clearance and Detection,	Bosnia-Herzegovina
11	UNICEF Landmine Awareness Camp	IO	Mine Risk Education	
12	United Nations Children's Fund (UNICEF)	IO	Humanitarian Coordination,	Afghanistan, Albania,
13	United Nations CyberSchoolBus (Schools De-mining Schools)	IO	Clearance and Detection,	
14	United Nations Department of Humanitarian Affairs (UNDHA)	IO	Clearance and Detection,	
15	United Nations Department of Peace Keeping Operations (UNDPKO)	IO	Other	
16	United Nations Development Program (UNDP)	IO	Advocacy and Diplomacy,	Afghanistan, Angola,
17	United Nations Development Program (UNDP), Armenia	IO	Advocacy and Diplomacy,	Armenia
18	United Nations Foundation	IO	Mine Risk Education,	
19	United Nations High Commissioner for Refugees (UNHCR)	IO	Other,	
20	United Nations Mine Action Coordination Centre, South Lebanon	IO	Clearance and Detection	Lebanon

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
21	United Nations Mine Action Service (UNMAS)	IO	Clearance and Detection,	Afghanistan, Congo, Democratic Republic of the,
22	United Nations Office for Project Services (UNOPS)	IO	Clearance and Detection,	Afghanistan, Azerbaijan,
23	United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)	IO	Other	
24	United Nations Volunteers	IO	Clearance and Detection,	
25	World Bank	IO	Clearance and Detection,	Afghanistan, Albania,
26	World Food Program (WFP)	IO	Humanitarian Coordination,	Afghanistan, Albania,

Table 29. Mine Action Centers/National De-mining Organizations

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
1	Albanian Mine Action Center/Albanian Mine Action Executive	MAC/NDO	Clearance and Detection,	Albania
2	Azerbaijan National Agency for Mine Action (ANAMA)	MAC/NDO	Clearance and Detection,	Azerbaijan
3	Bosnia and Herzegovina Mine Action Center (BHMAC)	MAC/NDO	Clearance and Detection,	Bosnia-Herzegovina
4	Cambodian Mine Action Centre (CMAC)	MAC/NDO	Clearance and Detection,	Cambodia
5	Center of De-mining Ecuador	MAC/NDO		Ecuador
6	Centro Peruano de Acción Contra las Minas Anti-Personal (CONTRAMINAS)	MAC/NDO	Advocacy and Diplomacy,	Peru
7	Croatian Mine Action Center (CROMAC)	MAC/NDO	Clearance and Detection,	Croatia
8	Cyprus Mine Action Center	MAC/NDO	Advocacy and Diplomacy,	Cyprus
9	Ethiopian Mine Action Office (EMAO)	MAC/NDO	Advocacy and Diplomacy,	Ethiopia
10	HADT Commissariat National au Deminage	MAC/NDO	Clearance and Detection,	Chad

11	Instituto Nacional de Remoação de Obstáculos e Engenhos explosivos (INAROEE)	MAC/NDO	Clearance and Detection,	Angola
12	Islamic Republic Of Iran Mine Action Center (IRMAC)	MAC/NDO	Awareness,	Iran
13	Mine Action Center for Afghanistan (MACA)	MAC/NDO	Advocacy and Diplomacy,	Afghanistan
14	Mine Action Center Mozambique	MAC/NDO	Clearance and Detection,	
15	Mine Action Coordination Centre South Lebanon	MAC/NDO	Other	Lebanon
16	Negron Karabakh MAC	MAC/NDO	Awareness,	Azerbaijan
17	National De-mining Commission (CND) Mozambique	MAC/NDO	Clearance and Detection,	Mozambique
18	National De-mining Commission (NCD) Nicaragua	MAC/NDO	Clearance and Detection,	Nicaragua
19	National De-mining Headquarters-Yemen	MAC/NDO	Clearance and Detection	
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
20	National Humanitarian De-mining Office - Mauritania	MAC/NDO	Advocacy and Diplomacy,	Mauritania
21	Somaliland Mine Action Centre (SMAC)	MAC/NDO	Advocacy and Diplomacy,	Somaliland
22	Thailand Mine Action Center (TMAC)	MAC/NDO	Clearance and Detection,	
23	Ukrainian Mine Action Coordination Center	MAC/NDO	Advocacy and Diplomacy,	Eritrea, Iraq,
24	United Nations - Mine Action Coordination Centre Southern Lebanon	MAC/NDO	Clearance and Detection,	Lebanon
25	United Nations Mission for Ethiopia and Eritrea Mine Action Coordination Center (UNMEE MACC)	MAC/NDO	Clearance and Detection,	Eritrea, Ethiopia
26	Zimbabwe Mine Action Centre	MAC/NDO	Clearance and Detection,	

Table 30. Military Organizations Conducting De-mining

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
1	4th Psychological Operations Group	Military	Research and Technology	
2	Aberdeen Test Center	Military	Research and Technology	
3	Air Mobility Warfare Center (AMWC)	Military	Other	USA
4	Alliant Techsystems (ATK)	Military	Other,	Argentina, Australia,
5	Army Headquarters, Engineers Directorate	Military	Research and Technology	Zimbabwe
6	Army School of Engineering	Military		
7	Belgian Royal Military Academy	Military	Other	Germany
8	Canadian National Defense Headquarters	Military		
9	Counter Explosive Hazards Center	Military	Awareness,	
10	Defence Academy	Military	Other	
11	Finnish Defence Forces, Material Cmd	Military	Research and Technology	
12	Force XX1-Solutions-International	Military	Clearance and Detection,	
13	Heeresversorgungsschule	Military	Research and Technology	
14	Héroes del Cenepa Ecuador	Military	Survivor and Victim Assistance	
15	High Committee for National De-mining	Military	Clearance and Detection,	
16	HUKdo. (Heeresunterstuetzungskommando) II 5 (3)	Military		Germany
17	Humanitarian De-mining Training Center - Argentina	Military	Regional Cooperation,	
18	Institute for Military Engineering Excellence in Southern Africa (IMEESA)	Military	Mine Risk Education,	Mozambique, South Africa
19	Institute for National Security Studies	Military	Research and Technology	

20	Inter-American Defense Board (IADB)	Military	Clearance and Detection,	Costa Rica, Guatemala,
21	Intergraph Federal Systems	Military	Research and Technology	
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
22	International Mine Action Training Centre (Eastern Africa)	Military	Advocacy and Diplomacy,	Kenya
23	JFK Special Warfare Center & School	Military	Other	
24	Joint UXO Coordination Office	Military	Clearance and Detection,	
25	Ministry of Defense	Military	Other	
26	National Ground Intelligence Center (NGIC)	Military	Other	
27	OAO Robotics	Military	Clearance and Detection,	
28	Peace 4 world	Military	Other	
29	Pionierschule und Fachschule des Heeres für Bautechnik	Military		
30	Signal & Image Centre (SIC)	Military	Clearance and Detection,	
31	South African Defense Force	Military	Other	
32	Surviac	Military	Research and Technology	
33	Swedish EOD and De-mining Centre	Military	Clearance and Detection,	
34	U.S. Army ARDEC	Military	Other,	
35	U.S. Army Cold Regions Research	Military	Other,	
36	U.S. Army Engineer School	Military	Mine Risk Education,	
37	U.S. Army, NVESD	Military	Research and Technology	
38	U.S. Department of Defense OASD/ SO/LIC	Military	Clearance and Detection	
39	United Kingdom Mine Information and Training Centre (UKMITC)	Military	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,

40	US Army Aviation & Missile Command	Military	Other	
41	USCENTCOM/CCJ-5 (De-mining)	Military	Clearance and Detection	
42	USEUCOM/ECSO-J37 (De-mining)	Military	Clearance and Detection	
43	USSOCOM/SOOP-OAC (De-mining)	Military	Clearance and Detection	
44	USSOUTHCOM/J334 (De-mining)	Military	Other	

Table 31. Non-Governmental Organizations/International Non-Governmental Organizations Dealing with Land Mines

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
1	Accelerated De-mining Program (ADP)	NGO/INGO	Clearance and Detection,	Mozambique
2	Action Against Hunger	NGO/INGO	Survivor and Victim Assistance	Afghanistan, Angola,
3	Action by Churches Together International (ACT)	NGO/INGO	Humanitarian Coordination	Afghanistan, Albania,
4	Action For National Development (Action)	NGO/INGO	Advocacy and Diplomacy,	Pakistan
5	Action Solidarite Tiers Monde	NGO/INGO	Advocacy and Diplomacy,	Luxembourg
6	ActionAid	NGO/INGO	Survivor and Victim Assistance	Afghanistan, Bangladesh,
7	Acumen Fund	NGO/INGO	Humanitarian Coordination,	Egypt, Pakistan
8	Adopt-A-Minefield (UK)	NGO/INGO	Clearance and Detection,	Afghanistan, Angola,
9	Adopt-A-Minefield (United Nations Association of the USA)	NGO/INGO	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,
10	Adventist Development and Relief Agency International (ADRA)	NGO/INGO	Humanitarian Coordination	Afghanistan, Albania,
11	Afghan Campaign to Ban Landmines	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Pakistan
12	Afghan Red Crescent Society (ARCS)	NGO/INGO	Humanitarian Coordination,	Afghanistan

13	Afghan Technical Consultants (ATC)	NGO/ING O	Clearance and Detection,	Afghanistan
14	Africa Policy Information Center (APIC)	NGO/ING O	Advocacy and Diplomacy,	USA
15	African Humanitarian Action (AHA)	NGO/ING O	Advocacy and Diplomacy,	Ethiopia, Uganda
16	African Medical and Research Foundation (AMREF)	NGO/ING O	Humanitarian Coordination,	Burundi, Congo, Democratic Republic of the,
17	African Women's Alliance for Mobilizing Action (AWAMA)	NGO/ING O	Advocacy and Diplomacy,	Mozambique
18	Africare	NGO/ING O	Humanitarian Coordination,	Angola, Benin,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
19	Afronet	NGO/ING O	Advocacy and Diplomacy,	Botswana, Egypt,
20	Akcija Protiv Mina	NGO/ING O	Survivor and Victim Assistance	Bosnia-Herzegovina
21	Albanian Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy,	Albania
22	Albanian Red Cross	NGO/ING O	Humanitarian Coordination,	Albania
23	Algerian Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy,	Algeria
24	Algerians Volunteers for Peace and Cultural Exchange	NGO/ING O	Humanitarian Coordination,	
25	American Friends Service Committee (AFSC)	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
26	American Land Mine Disposal Foundation	NGO/ING O	Clearance and Detection	USA
27	American Limb & Orthopedic Co.	NGO/ING O	Prosthetics,	USA
28	American Physical Society	NGO/ING O	Other,	USA
29	American Red Cross	NGO/ING O	Survivor and Victim Assistance	Albania, Armenia,

30	American Refugee Committee	NGO/ING O	Mine Risk Education,	Bosnia-Herzegovina, Congo DR
31	Amputee Coalition of America (ACA)	NGO/ING O	Survivor and Victim Assistance	USA
32	Amputee Coalition of America National Limb Loss Information Center (ACA NLLIC)	NGO/ING O	Survivor and Victim Assistance	USA
33	Angola Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy,	Angola
34	Angolan Red Cross	NGO/ING O	Humanitarian Coordination	Angola
35	Anti Landmijn Stichting/Anti Landmine Foundation	NGO/ING O	Fundraising and Sponsorship	Netherlands
36	Antimining Friends Committee	NGO/ING O	Advocacy and Diplomacy,	Albania
37	APOPO	NGO/ING O	Clearance and Detection,	Belgium, Mozambique,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
38	Arab Net of Researchers on Landmine and ERW	NGO/ING O	Humanitarian Coordination,	Algeria, Bahrain,
39	Armenian Red Cross Society	NGO/ING O	Humanitarian Coordination,	Armenia
40	ASCATED	NGO/ING O	Survivor and Victim Assistance	Guatemala
41	Asia Foundation, The	NGO/ING O	Clearance and Detection,	Afghanistan, Bangladesh,
42	Asian Disaster Preparedness Center (ADPC)	NGO/ING O	Advocacy and Diplomacy,	Cambodia, Laos,
43	Asistencia a la Acción Integral contra las Minas Antipersonal (AICMA) Ecuador	NGO/ING O	Advocacy and Diplomacy,	Ecuador
44	Asociacion de Victimas y Sobrevivientes de Campos Minados (AVISCAM)	NGO/ING O	Advocacy and Diplomacy,	Peru

45	Associacao Africana para a Desminagem e o Desenvolvimento (AFROVITA)	NGO/ING O	Clearance and Detection,	Mozambique
46	Association de Recherche de Techniques Innovantes en Déminage humanitaire	NGO/ING O	Clearance and Detection,	France
47	Association for Aid and Relief (AAR)	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Angola,
48	Association for the Collaboration and Development of Cambodia	NGO/ING O	Clearance and Detection,	Cambodia, Spain
49	Associazione Italiana Amici di Raoul Follereau (AIFO)	NGO/ING O	Humanitarian Coordination,	Angola, Brazil,
50	AUSTCARE	NGO/ING O	Awareness,	Afghanistan, Angola,
51	Australian Lutheran World Service	NGO/ING O	Humanitarian Coordination	Australia, Cambodia,
52	Austrian Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy	Austria
53	AVSI	NGO/ING O	Advocacy and Diplomacy,	Uganda
54	Azerbaijan Red Crescent Society	NGO/ING O	Humanitarian Coordination,	Azerbaijan
55	Baidarie	NGO/ING O	Advocacy and Diplomacy,	
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
56	Bakhtar Associates	NGO/ING O	De-mining Equipment,	USA
57	Banning of Landmines-Sri Lanka Movement	NGO/ING O	Advocacy and Diplomacy,	Sri Lanka
58	Barr United Amputee Assistance Fund	NGO/ING O	Mine Risk Education,	Belize, Guyana,
59	Belarus Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy,	Belarus
60	Bellanet	NGO/ING O	Research and Technology	Canada
61	BGM Social service Centre Trust	NGO/ING O	Awareness,	India

62	BOCS Foundation	NGO/ING O	Awareness,	Hungary
63	Brazilian Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy,	Brazil
64	Burkinabe Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy,	Burkina Faso
65	Burundi Red Cross	NGO/ING O	Humanitarian Coordination,	Burundi
66	Cambodia Campaign to Ban Landmines (CCBL)	NGO/ING O	Advocacy and Diplomacy	Cambodia
67	Cambodia Trust	NGO/ING O	Survivor and Victim Assistance	Cambodia
68	Cambodian Handicraft Association for Landmine and Polio Disabled (CHA)	NGO/ING O	Survivor and Victim Assistance	Cambodia
69	Cambodian National Volleyball League (Disabled)	NGO/ING O	Awareness,	Cambodia
70	Cambodian Red Cross	NGO/ING O	Humanitarian Coordination,	Cambodia
71	Cambodian School of Prosthetics and Orthotics	NGO/ING O	Survivor and Victim Assistance	Cambodia
72	Campana Colombiana Contra Minas (CCCM)	NGO/ING O	Advocacy and Diplomacy,	Colombia
73	Campanha Mocambicana Contra as Minas	NGO/ING O	Advocacy and Diplomacy	Mozambique
74	Canadian Association for Mine Explosive Ordnance (CAMEO) Security	NGO/ING O	Clearance and Detection,	Afghanistan, Angola,
75	Canadian International De-mining Corps (CIDC)	NGO/ING O	Clearance and Detection,	Algeria, Belarus,
76	Canadian Landmine Detection Dogs Society	NGO/ING O	Clearance and Detection,	Canada, Sri Lanka
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
77	Canadian Landmine Foundation	NGO/ING O	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,

78	CARE Australia	NGO/ING O	Advocacy and Diplomacy,	Burma (Myanmar), Cambodia,
79	CARE Brasil	NGO/ING O	Humanitarian Coordination,	Brazil
80	CARE Canada	NGO/ING O	Mine Risk Education,	Afghanistan, Albania,
81	CARE Danmark	NGO/ING O	Mine Risk Education,	Bolivia, Ghana,
82	CARE Deutschland	NGO/ING O	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,
83	CARE France	NGO/ING O	Mine Risk Education,	Afghanistan, Angola,
84	CARE Nederland	NGO/ING O	Mine Risk Education,	Albania, Angola,
85	CARE Norge	NGO/ING O	Mine Risk Education,	Albania, Angola,
86	care of life	NGO/ING O	Awareness,	
87	CARE UK	NGO/ING O	Mine Risk Education,	Afghanistan, Angola,
88	CARE USA	NGO/ING O	Mine Risk Education,	Afghanistan, Angola,
89	Casualty Care Research Center	NGO/ING O	Humanitarian Coordination,	USA
90	Catholic Relief Services	NGO/ING O	Clearance and Detection,	Afghanistan, Albania,
91	Center for International Rehabilitation (CIR)	NGO/ING O	Mine Risk Education,	Afghanistan, USA
92	Central American Land Mine Survivors Project	NGO/ING O	Survivor and Victim Assistance	El Salvador, Honduras,
93	Centre for Humanitarian Programs	NGO/ING O	Humanitarian Coordination	United Kingdom
94	Centre for Peacemaking & Community Development	NGO/ING O	Humanitarian Coordination	Russian Federation
95	Centro de Información y Asistencia Humanitaria en Zonas Minadas de Chile	NGO/ING O	Advocacy and Diplomacy,	Argentina, Bolivia,

96	Centro Integral de Rehabilitacion de Colombia	NGO/ING O	Survivor and Victim Assistance	Colombia
97	Chechen Committee of the International Humanitarian Movement "Refugees Against Landmines"	NGO/ING O	Advocacy and Diplomacy,	Georgia
98	Child-to-Child Trust, Institute of Education, University of London	NGO/ING O	Humanitarian Coordination,	United Kingdom
99	Children and Armed Conflict Unit	NGO/ING O	Survivor and Victim Assistance	Afghanistan, Albania,
100	Christian Children's Fund	NGO/ING O	Humanitarian Coordination	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
101	Christian Council of Tanzania	NGO/ING O	Humanitarian Coordination	Tanzania
102	Church of Hope Ministries(CHM)	NGO/ING O	Awareness,	
103	Church World Service	NGO/ING O	Humanitarian Coordination	Somalia
104	CIET International	NGO/ING O	Mine Risk Education,	Afghanistan, Angola,
105	Citizens Association for Mine Protection ZOM	NGO/ING O	Awareness,	Bosnia-Herzegovina
106	Citizens Energy	NGO/ING O	Humanitarian Coordination	Angola, USA
107	Clear Path International (CPI)	NGO/ING O	Fundraising and Sponsorship,	Cambodia, Thailand,
108	CLEARED GROUND DE-MINING	NGO/ING O	Clearance and Detection,	Jordan
109	Colombo Friend in Need Society	NGO/ING O	Survivor and Victim Assistance	Germany, Sri Lanka
110	Community Agency for Social Enquiry	NGO/ING O	Humanitarian Coordination,	South Africa
111	Community Motivation and Development Organization (CMDO)	NGO/ING O	Humanitarian Coordination,	Pakistan
112	Congolese Red Cross	NGO/ING O	Humanitarian Coordination,	Congo, Republic of the

113	Cooperative Orthotic and Prosthetic Enterprise (COPE)	NGO/ING O	Advocacy and Diplomacy,	Laos
114	COPE International Inc. (Consultants for Orthotic and Prosthetic Education)	NGO/ING O	Mine Risk Education,	Afghanistan, Cambodia,
115	Costa Rican Red Cross	NGO/ING O	Humanitarian Coordination,	Costa Rica
116	Counterpart International	NGO/ING O	Humanitarian Coordination	Azerbaijan, Barbados,
117	Croatian Campaign to Ban Landmines (CCBL)	NGO/ING O	Advocacy and Diplomacy	Croatia
118	Croatian Mine Victims Association	NGO/ING O	Survivor and Victim Assistance	Croatia
119	Croatian Red Cross	NGO/ING O	Humanitarian Coordination,	Croatia
120	CZ team, Ltd.	NGO/ING O	Clearance and Detection,	Algeria, Angola,
121	Danish Church Aid (DanChurchAid / DCA)	NGO/ING O	Advocacy and Diplomacy,	Albania, Angola,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
122	Danish De-mining Group	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Iraq,
123	Dean Prosthetic & Orthotic Services, Ltd.	NGO/ING O	Survivor and Victim Assistance	USA
124	Defense for Children International	NGO/ING O	Advocacy and Diplomacy,	Israel, Occupied Palestinian Territory
125	DeMine - D&M O.N.G.	NGO/ING O	Clearance and Detection,	Afghanistan, Albania,
126	De-mining Agency for Afghanistan (DAFA)	NGO/ING O	Clearance and Detection	Afghanistan
127	Denmark Against Landmines/Danmark Mod Landminer	NGO/ING O	Advocacy and Diplomacy,	Denmark
128	Dervish Mine Clearance Ltd.	NGO/ING O	Clearance and Detection,	United Kingdom
129	Deutsche Minenraeumer (DEMIRA e.V.)	NGO/ING O	Clearance and Detection,	Angola, Bosnia-Herzegovina,

130	Deutsches Rotes Kreuz/German Red Cross (DRK)	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Algeria,
131	Developing & Promotion Economical-Humanity Organization	NGO/ING O	Clearance and Detection,	Iraq
132	Development Technology Workshop (DTW)	NGO/ING O	Clearance and Detection,	Angola, Bosnia-Herzegovina,
133	Digger DTR	NGO/ING O	De-mining Equipment	Sudan, Switzerland
134	Direct Relief International	NGO/ING O	Humanitarian Coordination	Afghanistan, Algeria,
135	Disability Action Council	NGO/ING O	Advocacy and Diplomacy,	Cambodia
136	Disability and Development Partners (DDP)	NGO/ING O	Advocacy and Diplomacy,	Angola, Bangladesh,
137	Disabled People International (DPI)	NGO/ING O	Advocacy and Diplomacy,	Canada
138	Disarmament and Nonviolence	NGO/ING O	Advocacy and Diplomacy,	Georgia
139	Ditshwanelo- The Botswana Centre for Human Rights	NGO/ING O	Humanitarian Coordination,	Botswana
140	Dooley Foundation-INTERMED, inc.	NGO/ING O	Survivor and Victim Assistance	Burma (Myanmar), Laos
141	Dutch Landmines Campaign	NGO/ING O	Other	
142	EarthAction	NGO/ING O	Advocacy and Diplomacy,	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
143	East African Ecotourism Development and Conservation Consultants	NGO/ING O	Research and Technology,	
144	Eden Social Welfare Foundation	NGO/ING O	Advocacy and Diplomacy,	Taiwan
145	EMERGENCY: Life Support for Civilian War Victims	NGO/ING O	Humanitarian Coordination,	Afghanistan, Algeria,

146	Engineers Without Borders/Ingenieurs Sans Frontiers Canada	NGO/ING O	Mine Risk Education,	Canada
147	Environmental Law Institute	NGO/ING O	Mine Risk Education,	USA
148	ESC	NGO/ING O	Clearance and Detection,	Iran
149	Ethiopian De-mining Project	NGO/ING O	Clearance and Detection	Ethiopia
150	Ethiopian Red Cross Society	NGO/ING O	Humanitarian Coordination,	Ethiopia
151	Faith Action for Community Transformation	NGO/ING O	Awareness,	India
152	Federal Academy for Orthopaedic Technology	NGO/ING O	Awareness,	Belarus, China,
153	Federation Humanitaire de Lomar - Delegation en France	NGO/ING O	Advocacy and Diplomacy,	Burkina Faso, Central African Republic
154	Fort Enterprise	NGO/ING O	Clearance and Detection	Croatia, Russian Federation
155	Foundation Together: Regional Center for the Psychosocial Well-being of Children	NGO/ING O	Survivor and Victim Assistance	Slovenia
156	Foundation World Without Mines/Stiftung Welt ohne Minen (WOM)	NGO/ING O	Advocacy and Diplomacy,	Albania, Angola,
157	Fund for Reconciliation and Development (FRD)	NGO/ING O	Humanitarian Coordination,	Cambodia, Cuba,
158	General Board of Global Ministries (GBGM/UMC)	NGO/ING O	Humanitarian Coordination	Afghanistan, Albania,
159	Genesis Project	NGO/ING O	Advocacy and Diplomacy,	Bosnia-Herzegovina
160	Geneva Call (GC)	NGO/ING O	Advocacy and Diplomacy,	Angola, Bangladesh,
161	Georgian White Cross Union	NGO/ING O	Humanitarian Coordination,	Armenia, Azerbaijan,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation

162	German Initiative to Ban Landmines	NGO/INGO	Clearance and Detection,	Afghanistan, Angola,
163	Global Life Support	NGO/INGO	Humanitarian Coordination,	Afghanistan, Bosnia-Herzegovina,
164	Global Volunteer Network	NGO/INGO	Humanitarian Coordination,	China, Ecuador,
165	Glory Amos Ministries International Network	NGO/INGO	Survivor and Victim Assistance	
166	Golden West Humanitarian Foundation	NGO/INGO	Clearance and Detection,	USA
167	Grapes for Humanity	NGO/INGO	Humanitarian Coordination	Cambodia, Canada,
168	Green Earth Organisation	NGO/INGO	Humanitarian Coordination,	Ghana
169	HALO Trust	NGO/INGO	Clearance and Detection,	Afghanistan, Angola, (more)
170	HALO USA	NGO/INGO	Clearance and Detection,	Afghanistan, Angola,
171	HAMAP DEMINEURS	NGO/INGO	Clearance and Detection,	Cambodia, France,
172	Hammer Forum e.V.	NGO/INGO	Survivor and Victim Assistance	Congo, Republic of the, Eritrea,
173	Handicap International (HI) De-mining & EOD Project	NGO/INGO	Clearance and Detection	
174	Handicap International Belgium (HIB)	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Angola,
175	Handicap International France (HIF)	NGO/INGO	Clearance and Detection,	Belgrade, FYR, Denmark,
176	Handicap International UK	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Angola,
177	Handicapped Education Foundation (Hand-ef)	NGO/INGO	Awareness,	Nigeria
178	Health Volunteers Overseas	NGO/INGO	Mine Risk Education,	Vietnam
179	Help Handicapped International	NGO/INGO	Other,	Afghanistan, Burundi,
180	HELP Hilfe zur Selbsthilfe e. V.	NGO/INGO	Clearance and Detection,	Afghanistan, Bosnia-Herzegovina,
181	Helpful Friend	NGO/INGO	Advocacy and Diplomacy,	Nepal

182	Helsinki Committee for Human Rights in Serbia	NGO/ING O	Awareness,	Albania, Andorra,
183	HOPE International	NGO/ING O	Awareness,	Afghanistan, Pakistan
184	Horizon	NGO/ING O	Clearance and Detection,	
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
185	Human Rights Watch	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
186	Humane Society of the U.S.	NGO/ING O	Advocacy and Diplomacy,	USA
187	Humanitarian Aid (HUMAID)	NGO/ING O	Clearance and Detection,	Guinea-Bissau
188	Humanitarian Aid Medical Development (HMD/HAMD) / HMD Response International	NGO/ING O	Awareness,	Angola, Bosnia-Herzegovina,
189	Humanitarian Landmine Disposal Foundation (HLDF)	NGO/ING O	Clearance and Detection,	Angola, Korea, People's Republic of (South),
190	Humanity Dog	NGO/ING O	Clearance and Detection	Bosnia-Herzegovina, Norway,
191	Humpty Dumpty Institute	NGO/ING O	Clearance and Detection,	Angola, Eritrea,
192	Hungarian Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy	Hungary
193	ICBL Georgian Committee	NGO/ING O	Advocacy and Diplomacy,	Georgia
194	Indian Institute for Peace, Disarmament & Environmental Protection (IIPDEP)	NGO/ING O	Advocacy and Diplomacy,	India
195	Institute of Munition Clearance Engineers	NGO/ING O	Clearance and Detection	United Kingdom
196	Institute of Rehabilitation of the Republic of Slovenia	NGO/ING O	Survivor and Victim Assistance	Slovenia
197	InterAction	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Brazil,

198	International Campaign to Ban Landmines (ICBL)	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
199	International Center for the Advancement of Community-Based Rehabilitation	NGO/ING O	Policy,	Bosnia-Herzegovina, Canada,
200	International Committee of the Red Cross (ICRC)	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
201	International Development Research Centre (IDRC)	NGO/ING O	Research and Technology	Argentina, Brazil,
202	International Eurasia Press Fund	NGO/ING O	Awareness,	Azerbaijan
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
203	International Federation of Red Cross and Red Crescent Societies (IFRC)	NGO/ING O	Humanitarian Coordination,	Afghanistan, Albania,
204	International Labour Organization (ILO)	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
205	International Mine Initiative (I.M.I.)	NGO/ING O	Awareness,	Bosnia-Herzegovina, Iraq,
206	International Parliament for the United Nations (I.P.U.N. Diplomatic Corps)	NGO/ING O	Advocacy and Diplomacy,	Italy, USA
207	International Physicians for the Prevention of Nuclear War (IPPNW)	NGO/ING O	Advocacy and Diplomacy,	Australia, India,
208	International Rescue Committee (IRC)	NGO/ING O	Mine Risk Education,	Afghanistan, Albania,
209	International Trust Fund for De-mining and Mine Victims Assistance (ITF)	NGO/ING O	Clearance and Detection,	Albania, Armenia,
210	Intersos-Mine Action Unit	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Angola,

211	Iraqi Red Crescent Society	NGO/ING O	Humanitarian Coordination,	Iraq
212	Italian Campaign to Ban Landmines (ItCBL)	NGO/ING O	Advocacy and Diplomacy	Italy
213	jan manas vikas sansthan	NGO/ING O	Humanitarian Coordination	
214	Japan Alliance for Humanitarian De-mining Support (JAHDS)	NGO/ING O	Clearance and Detection,	Cambodia, Thailand
215	Japan Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy	Japan
216	Japan Center for Conflict Prevention	NGO/ING O	Advocacy and Diplomacy,	Sri Lanka
217	Japan International Cooperation Agency (JICA)	NGO/ING O	Clearance and Detection,	Bolivia, Bosnia-Herzegovina,
218	Jesuit Refugee Service	NGO/ING O	Humanitarian Coordination,	Angola, Australia,
219	Just World Trust (JUST)	NGO/ING O	Humanitarian Coordination	Malaysia
220	Justice & Peace Commission of Thailand	NGO/ING O	Humanitarian Coordination	Thailand
221	KARUNA	NGO/ING O	Humanitarian Coordination,	Nepal
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
222	Kenya Coalition of NGOs Against Landmines (KCAL)	NGO/ING O	Advocacy and Diplomacy,	Kenya
223	Kessler Institute for Rehabilitation	NGO/ING O	Survivor and Victim Assistance	USA
224	Khurshid Memorial Foundation	NGO/ING O	Advocacy and Diplomacy,	Pakistan
225	Kommittee Cap Anamur/Deutsche Not-aerzte e.V.	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Angola,

226	Korea Campaign to Ban Landmines (KCBL)	NGO/INGO	Advocacy and Diplomacy	Korea, Democratic People's Republic of (North), Korea, People's Republic of (South)
227	Korean Mine Action Group (KMAG)	NGO/INGO	Clearance and Detection,	Korea, People's Republic of (South)
228	Kuwait Red Crescent Society	NGO/INGO	Humanitarian Coordination,	Kuwait
229	La PASIP	NGO/INGO	Advocacy and Diplomacy,	Indonesia
230	Landmine Action UK	NGO/INGO	Advocacy and Diplomacy,	Sri Lanka, Sudan, Guinea Bissau, Liberia and Western Sahara.Research work covers a much wider geographical area focusing on countries including Iraq, Kosovo, Pakistan, Laos and Lebanon.
231	Landmine Relief Fund	NGO/INGO	Awareness,	Cambodia
232	Landmine Struggle Center (LSC)	NGO/INGO	Clearance and Detection,	Egypt
233	Landmine Survivors Network (LSN)	NGO/INGO	Survivor and Victim Assistance	Bosnia-Herzegovina, Colombia,
234	Landmines Blow!	NGO/INGO	Advocacy and Diplomacy,	
235	Lebanese Red Cross (LRC)	NGO/INGO	Awareness,	Lebanon
236	Legal Research & Resource Center for Human Rights	NGO/INGO	Advocacy and Diplomacy,	Egypt
237	LIGHT	NGO/INGO	Awareness,	Pakistan

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
238	Limbs for Life Foundation	NGO/INGO	Survivor and Victim Assistance	Turkey, USA
239	Lutfi Foundation	NGO/INGO	Other	
240	Lutheran World Federation (LWF)	NGO/INGO	Humanitarian Coordination	Angola, Bangladesh,
241	Lutheran World Relief (LWR)	NGO/INGO	Clearance and Detection,	Bolivia, Burkina Faso,
242	MAG America	NGO/INGO	Awareness,	Angola, Cambodia,
243	Manitese	NGO/INGO	Humanitarian Coordination	Bangladesh, Benin,
244	Marshall Legacy Institute (MLI)	NGO/INGO	Advocacy and Diplomacy,	Angola, Bosnia-Herzegovina,
245	Massachusetts Peace Action - Campaign to Ban Landmines	NGO/INGO	Advocacy and Diplomacy,	USA
246	Mauritius Campaign to Ban Landmines	NGO/INGO	Advocacy and Diplomacy,	Mauritius
247	Médecins du Monde/Doctors of the World	NGO/INGO	Advocacy and Diplomacy,	Argentina, Azerbaijan,
248	Médecins sans Frontières/Doctors Without Borders (MSF)	NGO/INGO	Survivor and Victim Assistance	Afghanistan, Albania,
249	Medical Care Development International	NGO/INGO	Awareness,	Sudan
250	Medico International, e.V.	NGO/INGO	Advocacy and Diplomacy,	Angola, Brazil,
251	Mennonite Central Committee (MCC)	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Angola,
252	Menschen gegen Minen (MgM)	NGO/INGO	Awareness,	Angola, Mozambique,
253	Mercy Ships International Operations Center	NGO/INGO	Advocacy and Diplomacy,	Netherlands, South Africa,
254	Mercy Trucks	NGO/INGO	Humanitarian Coordination,	
255	Mine Action Center Georgia	NGO/INGO	Awareness,	Georgia

256	Mine Action Program for Afghanistan (MAPA)	NGO/INGO	Advocacy and Diplomacy,	Afghanistan
257	Mine Clearance Planning Agency (MCPA)	NGO/INGO	Clearance and Detection,	Afghanistan, Vietnam
258	Mine Combat Organization	NGO/INGO	Advocacy and Diplomacy,	
259	Mine Detection Dog Center (MDC)	NGO/INGO	Clearance and Detection	Afghanistan
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
260	MINE FREE Planet	NGO/INGO	Advocacy and Diplomacy,	Sri Lanka
261	Mine Victims Fund (MVF) - U.S.	NGO/INGO	Humanitarian Coordination,	USA
262	Mine Victims Fund UK	NGO/INGO	Survivor and Victim Assistance	United Kingdom
263	Mine Warfare Association (MINWARA)	NGO/INGO	Humanitarian Coordination,	USA
264	MineFreeNow!	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Albania,
265	Mines Action Canada	NGO/INGO	Advocacy and Diplomacy,	Canada
266	Mines Advisory Group (MAG)	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Angola,
267	Mines Awareness Trust	NGO/INGO	Advocacy and Diplomacy,	Kosovo, FYR, Uganda
268	Mines Clearance International (MCI)	NGO/INGO	Clearance and Detection,	Bosnia-Herzegovina, Cambodia,
269	Mineseeker Foundation	NGO/INGO	Clearance and Detection,	United Kingdom
270	MineTech International	NGO/INGO	Clearance and Detection,	Mozambique, United Kingdom,
271	Misereor	NGO/INGO	Humanitarian Coordination,	Afghanistan, Angola,
272	Mission Aviation Fellowship of Canada (MAF)	NGO/INGO	Humanitarian Coordination	Canada
273	Mobility Project	NGO/INGO	Humanitarian Coordination,	Afghanistan, El Salvador,

274	Mozambican Campaign Against Landmines (CMCM)	NGO/ING O	Advocacy and Diplomacy,	Mozambique
275	Mozambique Red Cross Society (MRC)	NGO/ING O	Advocacy and Diplomacy,	Mozambique
276	Myanmar Red Cross Society	NGO/ING O	Humanitarian Coordination,	Burma (Myanmar)
277	Nahdat Misr Institution	NGO/ING O	Awareness,	
278	Namibia Red Cross	NGO/ING O	Humanitarian Coordination,	Namibia
279	Namibian Campaign to Ban Landmines (NCBL)	NGO/ING O	Advocacy and Diplomacy,	Namibia
280	National Committee on American Foreign Policy and Huntington Associates	NGO/ING O	Advocacy and Diplomacy,	USA
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
281	National Laotian-Americans for Justice	NGO/ING O	Humanitarian Coordination	Laos, USA
282	Nepal Campaign to Ban Landmines (NCBL)/Women Development Society	NGO/ING O	Advocacy and Diplomacy	Nepal
283	Nepal De-mining and rehabilitation program	NGO/ING O	Awareness,	
284	NEST(Navadeepam Educational Social Trust)	NGO/ING O	Awareness,	India
285	New Zealand Campaign Against Landmines (NZ CALM)	NGO/ING O	Advocacy and Diplomacy	New Zealand
286	NGO Committee on Disarmament	NGO/ING O	Advocacy and Diplomacy,	USA
287	Nicaraguan Red Cross	NGO/ING O	Humanitarian Coordination,	Nicaragua
288	Nigeria Landmine Action Group	NGO/ING O	Advocacy and Diplomacy,	Angola, Chad,
289	NOBLE VOCATIONAL TRAINING WELFARE CENTRE	NGO/ING O	Awareness,	India

290	Non State Actors Working Group on Landmines (NSA-WG)	NGO/ING O	Advocacy and Diplomacy	Other
291	Nonviolence International - SE Asia	NGO/ING O	Advocacy and Diplomacy,	Burma (Myanmar), Thailand
292	Nordic De-mining Research Forum (NDRF)	NGO/ING O	Clearance and Detection,	Finland, Norway,
293	Norwegian Peoples Aid (NPA)	NGO/ING O	Advocacy and Diplomacy,	Angola, Bosnia-Herzegovina,
294	Nuba Mountains Solidarity Abroad (NMSA)	NGO/ING O	Advocacy and Diplomacy,	
295	One Sri Lanka Foundation	NGO/ING O	Advocacy and Diplomacy,	Sri Lanka
296	Open Society Institute Landmines Project	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
297	Operation Landmine	NGO/ING O	Clearance and Detection,	Cambodia, Cuba,
298	Operation LIMBS	NGO/ING O	Survivor and Victim Assistance	USA
299	Organization for Mine Clearance and Afghan Rehabilitation (OMAR)	NGO/ING O	Clearance and Detection,	Afghanistan
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
300	Overseas Development Institute	NGO/ING O	Humanitarian Coordination,	Eritrea, Gambia,
301	OXFAM International	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
302	Pacific Conference of Churches	NGO/ING O	Humanitarian Coordination	Fiji
303	Pact (OMEGA)	NGO/ING O	Humanitarian Coordination,	Angola, Botswana,
304	Pakistan International human rights Organization	NGO/ING O	Awareness,	Afghanistan, Norway,
305	Pakistan International Human Rights Organization (PIHRO)	NGO/ING O	Advocacy and Diplomacy,	Pakistan
306	Palestinians and Israelis for Non-Violence	NGO/ING O	Advocacy and Diplomacy,	Israel, Occupied Palestinian Territory

307	Patrick J. Leahy War Victims Fund (LWVF) (USAID)	NGO/ING O	Humanitarian Coordination,	Afghanistan, Albania,
308	Pax Christi International	NGO/ING O	Advocacy and Diplomacy,	Colombia, Cuba,
309	Peace Union of Finland	NGO/ING O	Advocacy and Diplomacy,	Finland
310	Peacekeeping Centre	NGO/ING O	Advocacy and Diplomacy,	Canada
311	PeaceTrees Vietnam	NGO/ING O	Advocacy and Diplomacy,	Vietnam
312	People to People International (PTPI)	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
313	People's Aid Coordinating Committee (PACCOM)	NGO/ING O	Humanitarian Coordination,	Vietnam
314	Philanthropic Network	NGO/ING O	Humanitarian Coordination	USA
315	Phoenix Humanitarian De-mining e.V.	NGO/ING O	Clearance and Detection,	Germany
316	Physicians Against Landmines (PALM)	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Angola,
317	Physicians for Global Survival	NGO/ING O	Advocacy and Diplomacy,	Canada, Iraq
318	Physicians for Human Rights (PHR)	NGO/ING O	Advocacy and Diplomacy,	Mozambique, USA
319	Physicians for Peace (PfP)	NGO/ING O	Advocacy and Diplomacy,	Dominican Republic, Egypt,
320	Polus Center for Social and Economic Development	NGO/ING O	Humanitarian Coordination,	Guatemala, Honduras,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
321	POWER International (previously The International Limb Project)	NGO/ING O	Clearance and Detection,	Laos, Mozambique,
322	Promoters of Liberian and Canadian Relationship (POLCR) Inc.	NGO/ING O	Advocacy and Diplomacy,	Liberia
323	Prosthetics Outreach Foundation (POF)	NGO/ING O	Advocacy and Diplomacy,	Bangladesh, Vietnam

324	Prosthetics Research Study	NGO/ING O	Humanitarian Coordination,	USA
325	Quest Explosive Disposal Ltd	NGO/ING O	Awareness,	Hungary, United Kingdom
326	Reach the Child With It (RECIT)	NGO/ING O	Humanitarian Coordination,	Ghana
327	Red Crescent Society of Azerbaijan	NGO/ING O	Humanitarian Coordination,	Azerbaijan
328	Red Crescent Society of Tajikistan	NGO/ING O	Humanitarian Coordination,	Tajikistan
329	Red Cross of the Democratic Republic of the Congo	NGO/ING O	Humanitarian Coordination,	Congo, Democratic Republic of the
330	Red Cross of Viet Nam	NGO/ING O	Humanitarian Coordination,	Vietnam
331	Red Cross Society of Bosnia and Herzegovina	NGO/ING O	Humanitarian Coordination,	Bosnia-Herzegovina
332	Red Cross Society of Eritrea	NGO/ING O	Humanitarian Coordination,	Eritrea
333	Red Cross Society of Georgia	NGO/ING O	Humanitarian Coordination,	Georgia
334	Refugee Relief International	NGO/ING O	Survivor and Victim Assistance	Afghanistan, Bosnia-Herzegovina,
335	Refugees International	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Albania,
336	Rehabilitation Institute of Chicago	NGO/ING O	Humanitarian Coordination,	USA
337	Relief Azerbaijan	NGO/ING O	Clearance and Detection	Azerbaijan
338	ReMeD (Réseau Médicaments et Développement)	NGO/ING O	Humanitarian Coordination,	Algeria, Cambodia,
339	Rencontre Africaine de Défense des Droits de l'Homme (RADDHO)	NGO/ING O	Humanitarian Coordination,	Senegal
340	Republic of Lomar Foundation (ROLF/FHRL)	NGO/ING O	Advocacy and Diplomacy,	Bulgaria, Burkina Faso,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
341	Roots of Peace	NGO/ING O	Clearance and Detection,	Afghanistan, Angola,

342	Russian Physicians for the Prevention of Nuclear War	NGO/INGO	Humanitarian Coordination	Russian Federation
343	Russian Red Cross Society	NGO/INGO	Humanitarian Coordination,	Russian Federation
344	SADO	NGO/INGO	Advocacy and Diplomacy,	
345	Salu Self-Help Blind and Handicapped Association	NGO/INGO	Survivor and Victim Assistance	Ethiopia
346	SALUD SOLIDARIA	NGO/INGO	Research and Technology	
347	Sarvatra Technical Consultants	NGO/INGO	Awareness,	Sri Lanka
348	Save the Children	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Albania,
349	SERVE	NGO/INGO	Humanitarian Coordination	Afghanistan, USA
350	Sierra Leone Red Cross Society	NGO/INGO	Humanitarian Coordination,	Sierra Leone
351	Singapore Campaign to Ban Landmines	NGO/INGO	Advocacy and Diplomacy,	Singapore
352	Social-life and Agricultural Development Organisation (SADO)	NGO/INGO	Humanitarian Coordination	Somalia
353	Social-life and Agriculture Development Organization (SADO)	NGO/INGO	Advocacy and Diplomacy,	
354	Society for Counter-Ordnance Technology (SCOT)	NGO/INGO	Research and Technology	USA
355	Solidaritaetsdienst-international e.V. (SODI)	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Angola,
356	Somali Campaign to Ban Landmines	NGO/INGO	Advocacy and Diplomacy,	Somalia
357	Somali De-mining &UXO Action Group Centre (Sommac)	NGO/INGO	Advocacy and Diplomacy,	Switzerland
358	Somali Red Crescent Society	NGO/INGO	Humanitarian Coordination,	Somalia

359	Somalia De-mining Action Group	NGO/ING O	Clearance and Detection,	Somalia
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
360	South African Institute of International Affairs (SAIIA)	NGO/ING O	Research and Technology	South Africa
361	South East Asian Rural Development Fund, Inc.	NGO/ING O	Clearance and Detection,	Cambodia
362	South Florida Landmine Action Group (SFLAG)	NGO/ING O	Advocacy and Diplomacy,	USA
363	South-Eastern Europe Mine Action Coordination Council (SEEMACC)	NGO/ING O	Clearance and Detection,	
364	Southern Somali Mine Action Association	NGO/ING O	Advocacy and Diplomacy,	Somalia
365	Spirit of Soccer	NGO/ING O	Mine Risk Education	Bosnia-Herzegovina
366	Sports Facilitators for All	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Cambodia,
367	Sree Bajali Explosives	NGO/ING O	Mine Risk Education,	India
368	SRF Humanity Dog	NGO/ING O	Clearance and Detection	Norway, Sweden
369	Sri Lanka Red Cross Society	NGO/ING O	Humanitarian Coordination,	Sri Lanka
370	Standing Tall Australia	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Australia,
371	Stiftung Sankt Barbara/Saint Barbara's Foundation	NGO/ING O	Clearance and Detection,	Angola, Somalia,
372	STOP Mines	NGO/ING O	Awareness,	Bosnia-Herzegovina, Serbia
373	STS Somalia	NGO/ING O	Humanitarian Coordination	Somalia
374	Sudan Campaign to Ban Landmines	NGO/ING O	Mine Risk Education,	Sudan
375	Sudanese Red Crescent	NGO/ING O	Humanitarian Coordination,	Sudan

376	Support Center for Associations and Foundations (SCAF)	NGO/INGO	Advocacy and Diplomacy,	
377	Survey Action Center (SAC)	NGO/INGO	Survey	Afghanistan, Angola,
378	Svenska Freds - och Skiljedomsforeningen (Swedish Peace and Arbitration Society)	NGO/INGO	Other	Russian Federation, Yugoslavia
379	Swat Youth Front	NGO/INGO	Awareness,	Pakistan
380	Swedish Armed Forces Dog Instruction Centre (SAFDIC)	NGO/INGO	Clearance and Detection,	Sweden
381	Swedish Institute of Computer Science AB	NGO/INGO	Research and Technology	Sweden
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
382	Swedish Peace and Arbitration Society (SPAS)	NGO/INGO	Advocacy and Diplomacy	Russian Federation, Sweden
383	Swedish Working Dog Association	NGO/INGO	Clearance and Detection	Sweden
384	Swiss Campaign to Ban Landmines	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Angola,
385	Swiss Foundation for Mine Action (FSD)	NGO/INGO	Clearance and Detection,	Albania, Angola,
386	Swiss Mine & Explosive Detection Dogs Society (SMEDDS)	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Albania,
387	Taipei Overseas Peace Service (TOPS)	NGO/INGO	Mine Risk Education,	Taiwan
388	Tanzania Red Cross National Society	NGO/INGO	Humanitarian Coordination,	Tanzania
389	Terra Segura International (TSI)	NGO/INGO	Clearance and Detection,	USA
390	The Field Relief Agency of Taiwan (FRA)	NGO/INGO	Humanitarian Coordination	Taiwan
391	The Julia Burke Foundation	NGO/INGO	Clearance and Detection,	Burundi, Cambodia,
392	THE NEST - Social Research and Resource Centre	NGO/INGO	Awareness,	India

393	The Nigerian Landmine Action Group	NGO/ING O	Advocacy and Diplomacy,	Nigeria
394	The Pakistan Society for the Rehabilitation of the Disabled	NGO/ING O	Survivor and Victim Assistance	Pakistan
395	Tolerance Foundation	NGO/ING O	Humanitarian Coordination	Bosnia-Herzegovina, Czech Republic
396	Tonga Campaign to Ban Landmines	NGO/ING O	Advocacy and Diplomacy	Tonga
397	Towards Ecological Recovery & Regional Alliances (TERRA)	NGO/ING O	Humanitarian Coordination	Burma (Myanmar), Laos
398	Trauma Care Foundation	NGO/ING O	Humanitarian Coordination,	Afghanistan, Cambodia,
399	trust for village development	NGO/ING O	Advocacy and Diplomacy,	
400	U.S. Committee for Refugees	NGO/ING O	Humanitarian Coordination,	Afghanistan, Albania,
401	Uganda Red Cross Society	NGO/ING O	Humanitarian Coordination,	Uganda
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
402	UK Working Group on Landmines	NGO/ING O	Advocacy and Diplomacy,	Kosovo, FYR, United Kingdom
403	Ukrainian Humanitarian De-mining Task Force (UHDTF)	NGO/ING O	Clearance and Detection,	Iraq, Lebanon,
404	Ukrainian Peacekeepers Association	NGO/ING O	Advocacy and Diplomacy,	Afghanistan, Congo, Republic of the,
405	UNICEF Landmines and Small Arms Team Humanitarian Policy and Advocacy Unit	NGO/ING O	Advocacy and Diplomacy,	USA
406	United Church of Christ Global Ministries	NGO/ING O	Mine Risk Education,	
407	United For Colombia	NGO/ING O	Awareness,	Colombia, USA
408	United Methodist Committee on Relief (UMCOR)	NGO/ING O	Humanitarian Coordination,	Afghanistan, Angola,

409	UVS International	NGO/INGO	Clearance and Detection,	Australia, Austria,
410	Verification Research, Training and Information Centre (VERTIC)	NGO/INGO	Advocacy and Diplomacy,	United Kingdom
411	Veterans for America (formerly VVAF)	NGO/INGO	Advocacy and Diplomacy,	Angola, Cambodia,
412	Vietnam Assistance for the Handicapped	NGO/INGO	Survivor and Victim Assistance	Vietnam
413	VVAF iMMAP	NGO/INGO	Humanitarian Coordination,	Afghanistan, Angola,
414	WADEM Land Mine Task Force	NGO/INGO	Advocacy and Diplomacy,	Germany
415	War Child	NGO/INGO	Humanitarian Coordination,	
416	Wheelchair Foundation	NGO/INGO	Survivor and Victim Assistance	Afghanistan, Albania,
417	Women's International League for Peace & Freedom (WILPF)	NGO/INGO	Advocacy and Diplomacy,	Albania, Argentina,
418	World Emergency Relief – Headquarters	NGO/INGO	Survivor and Victim Assistance	Germany, Hong Kong,
419	World EOD Foundation (WEODF)	NGO/INGO	Clearance and Detection,	United Kingdom
420	World Health Organization (WHO)	NGO/INGO	Survey,	Afghanistan, Albania,
421	World Hope Foundation	NGO/INGO	Awareness,	Ghana, India,
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
422	World Rehabilitation Fund	NGO/INGO	Humanitarian Coordination,	Cambodia, Dominican Republic,
423	World Relief	NGO/INGO	Humanitarian Coordination	Afghanistan, Bangladesh,
424	World Vision International	NGO/INGO	Advocacy and Diplomacy,	Afghanistan, Albania,
425	Yemeni Mines Awareness Committee	NGO/INGO	Mine Risk Education	Yemen
426	Youth Approach for Development & Cooperation (YADC)	NGO/INGO	Mine Risk Education,	Bangladesh
427	Youth for Democracy and Human Rights	NGO/INGO	Awareness,	Somalia

428	Yugoslav Red Cross	NGO/ING O	Humanitarian Coordination,	Yugoslavia
429	Zambian Campaign to Ban Landmines (ZCBL)	NGO/ING O	Advocacy and Diplomacy,	Zambia
430	Zanzibar Writers Initiative	NGO/ING O	Advocacy and Diplomacy,	Tanzania

Table 32. Other Organizations Dealing with Land Mines

	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
1	1th Carlos Batista	Other	Clearance and Detection,	Bosnia-Herzegovina, Croatia,
2	agape gospel outreach team	Other	Other	India
3	Aigis	Other	De-mining Equipment,	
4	Bundesanstalt fuer Materialforschung und -pruefung	Other	Clearance and Detection,	
5	C2 Corps	Other		
6	H3Tec. LLC.	Other	Clearance and Detection,	USA
7	International Campaign to Ban Landmines Australian Network	Other	Advocacy and Diplomacy,	
8	International Child Amputee Network (I-CAN)	Other	Survivor and Victim Assistance	
9	International De-mining Consultants Ltd.	Other	Clearance and Detection,	
10	Japan International Cooperation System	Other	De-mining Equipment,	Afghanistan, Cambodia
11	Jushware	Other	Clearance and Detection,	Bosnia-Herzegovina, Croatia
12	Lao Techno Engineering	Other	Other,	Burma (Myanmar), Laos
13	Law Office of W. Robb Graham, LLC	Other	Other	USA
14	MG Engineering	Other	Research and Technology	

15	Military & Security Equipment	Other	De-mining Equipment,	
16	Mine Clearance International (MCI)	Other	Awareness,	Angola, Botswana,
17	Navy MSO Association	Other	Clearance and Detection,	USA
18	Pookie Developments	Other	Clearance and Detection,	
19	Proparms Ltd	Other	Clearance and Detection,	Afghanistan, Australia,
20	REFUGEE ENTERTAINMENT ORGANISATION HOLLAND	Other	Humanitarian Coordination	
	Organization	Org. Type	Activity Detail(s)	Country(ies) of Operation
21	RK Consulting	Other	Awareness,	Afghanistan, Bosnia-Herzegovina,
22	Roehll	Other	Clearance and Detection,	Bosnia-Herzegovina, Germany,
23	Rotarians for Mine Action	Other	Awareness,	Afghanistan, Australia,
24	Royal Hawaiian Institute for Landmine Removal	Other	Clearance and Detection,	USA
25	Rural Alliance for Child Advocacy and Welfare (RACAW)	Other	Advocacy and Diplomacy,	Cameroon
26	Sandpiper EOD Ltd	Other	Awareness,	
27	SLIRI	Other	Advocacy and Diplomacy,	Sudan
28	Swedish Dog Protection Fund	Other		Sweden
29	The Group of De-mining	Other	Clearance and Detection	
30	Youth Mine Action Ambassador Program (YMAAP)	Other	Advocacy and Diplomacy,	Canada
31	zibo continent carbon factory	Other	Other	

G. ANALYSIS OF THE INDUSTRY

The number of governmental and international agencies, organizations, military units, academic institutions and commercial firms included in mine action is a lot higher than most estimates. There are 61 Governmental organizations, 26 International Organizations, 26 Mine Action Centers/National De-mining Organizations, 44 Military Organizations, 91 Academic organizations, 430 Non-Governmental Organizations/International Non-Governmental Organizations, 300 commercial companies and 31 other types of organizations registered on the James Madison University listing[961] as of 22 October 2007 (shown in the tables above). While this fact reflects the seriousness of the problem, it also raises the question about how the measures and the efforts to solve the global contamination of landmines (and other types of ERWs/UXOs) should be addressed, taking the large number of players into the account.

Most people ask why the governments of the affected countries don't solve the problem by themselves by using their militaries and their own financial resources. The answer to that question is simply "It is beyond the capacity of any government in the world." The main reasons are financial constraints and capacity shortages.

Due to the need for supplemental staff to the local military forces' de-mining units to carry out de-mining, a significant dependence was created around the world. It was during the early to mid-1990s in particular that a big dependency arose on ex-military personnel,[962] both in conducting and training of de-mining or clearance operations and assuming management responsibilities in the emerging sector.

Other reasons for militaries' inability to conduct humanitarian mine actions are: military personnel are not trained and experienced in civilian or humanitarian mine action; military solutions or efforts cannot meet the actual need for clearance operations, especially MRE and Survey programs; military de-mining procedures are not designed to ensure the return of fertile lands to the farmers or return of completely cleared communal areas to communities; while the main purpose of military de-mining is to gain a safe

961 James Madison University, Mine Action Registry Website, http://maic.jmu.edu/gmar/browse.asp, (accessed 18 November 2007).

962 Chris Horwood, *Humanitarian Mine Action: The First Decade of a New Sector, in Humanitarian* Relief and Rehabilitation Network, Issue 32, March 2000, 9, Website, http://www.sheltercentre.org/shelter library/items/pdf/HumanitarianMineAction_theFirstDecade.pdf, (accessed 17 November 2007).

passage through a minefield, humanitarian mine action requires a complete clearance of the area and no more threat for the people living there; while military de-mining does not care about the surrounding area but the safe passage, humanitarian de-mining cares about the surrounding areas and the environment; if military de-miners think that the area is too hard to clear then they change their route but humanitarian de-miners can never do that.

The gap between the supply and the demand due to the reasons mentioned above serves as the main driving factor of involvement of most of the major players and the stake holders in the main action.

1. Stake Holders

There are plenty of stake holders in the de-mining operations. Major stake holders in the landmine problem and related clearance environment are:

a. Mine Affected Countries

The main stake holders in the efforts toward a mine-free world are the mine affected countries. As most of the mine affected countries are poor countries, the extent of problems caused by landmines is significantly beyond actual financial capacities. In order to get rid of the problems caused by the landmines, these countries' governments at least try to do their best. All the available means and mutual relations with the wealthy countries or donor organizations are tried. Besides, in some cases local people volunteer to join the mine clearance operations. Actually, there is more than one reason behind this local involvement. The first and foremost important reason for this approach is the financial constraint, poverty and the desperation of the poor villagers or farmers. Due to the destruction and contamination, most of citizens living in the country side become deprived of the fundamental means to make their living. Infrastructure and the roads leading to their farms, workplaces or sometimes even to their own houses are contaminated and the only remaining way to make the necessary money to make their living is to help the de-miners and earn some money. Moreover, people living in the contaminated area always work toward a solution as soon as possible.

Some countries try to solve the problem by using their military engineering units to deal with the problem. But this is a very long and painstaking way to tackle with such a long-lasting issue. First of all, mine clearance operations have become

very sophisticated procedures due to the new technology used in the manufacture of high-tech mines/submunitions and the need to have state-of-the-art de-mining equipment to locate such elusive quarry. Moreover, even when a country can afford to procure this equipment, the staff needs to be trained by the qualified de-miners and the technical personnel having proficiency with the equipment. The numbers of these critical qualified personnel are very limited and they are not always readily available for most of the countries. Another problem about the military is that organizations such as the European Union (EU), the United Nations (U.N.) and the World Bank, as well as many individual donor governments, have policies that do not readily support military capability, humanitarian or not. The funding policies of major donors and many donor governments may even have been key factors in the marginalization of military mine action efforts.[963]

In order to find the optimum solution for the country, governments began to cooperate with U.N. (Following an influential 'lessons learned' report by the U.N. Department of Humanitarian Affairs in 1997)[964] to establish Mine Action Coordination Centers mainly to concentrate on task planning, prioritization, monitoring, coordination of clearance activities and mine awareness training, organizing fund raising campaigns, making necessary arrangements and data collection for the funds appeals from international organizations. The U.N. has also begun to get involved in the mine action activities in the contaminated countries in the absence of a working government or after being asked for assistance from the local government.

In some cases, local people are hired to carry out de-mining operations either on behalf of the community or for the commercial de-mining companies. As mentioned above, their main objectives are making money to live and speeding the process for their own benefit. The operations conducted by locals are sometimes supervised by experts but sometimes they have no one to supervise them. This unsupervised de-mining is mostly conducted without any protective clothing, necessary tools and equipment or medical back-up. Although local de-mining can never be a

963 *The Role of the Military in Mine Action*, 3.

964 *Report, Reclaiming the Fields of War: Mainstreaming Mine Action in Development*, 11, Published by International Peace Research Institute, OSLO and United Nations Development Program, November 2004, Website http://www.prio.no/files/reclaiming_fields_of_war/MMA_Chapter_1.pdf (accessed 17 November 2007).

realistic substitute for professional de-mining there is no doubt that countless affected communities have acted independently to move, clear, and destroy mines.[965]

b. Neighboring Country(ies)

Landmine efforts, especially in Africa, affect the neighboring countries due to the refugees fleeing to their country. The sooner the landmine problem is solved, the sooner the people from affected countries return to their own land safely. In some countries the problem caused by the existence of the refugees results in great internal turmoil.

c. International Organizations, Communities

These organizations try to help the mine affected countries with the best means and the capacity needed for the proper de-mining operations. The biggest problems of these organizations are finding the necessary funds to carry out the mine clearance/landmine related operations and maintaining the coordination among the other organizations.

Representing several organizations, the most important player in anti-landmine efforts is the U.N. and its subunits. As opposed to previous inexperienced years in the fight against landmines (when U.N. was as incapable as any player of addressing the global landmine related problems), the U.N. has made significant progress following an influential 'lessons learned' report by the U.N. Department of Humanitarian Affairs (DHA, now OCHA) in 1997. The U.N. changed its old policy and switched to a general rule, one that distinguishes between coordination and implementation. The U.N. is now mainly involved in coordination, including the establishment of so-called Mine Action Centers (MACs) at the national level.[966] The 1997 report showed serious mistakes that the U.N. has been committing. However, significant progress has been made since 1997 and many recommendations listed in the report have been, or are currently being, addressed by the U.N. During the initial phases of the efforts in the first half of the 1990s, it was not clearly delineated who would do what and how. Besides, there was a significant staff gap, with workers of the time having only a little expertise and almost no

965 Horwood, *Humanitarian Mine Action*, 20.

966 *Reclaiming the Fields of War: Mainstreaming Mine Action in Development,* 11.

serious funding mechanism.[967] Later on, the U.N. implemented some institutional changes and structural developments and the focal point for all mine-related activities in the U.N. is now the Mine Action Service (UNMAS) within the U.N. Department of Peacekeeping Operations (UNDPKO).[968] The U.N. is also on occasion involved as the responsible executing body, either when mine action is implemented as part of a peacekeeping operation, in the absence of a functioning government or at the request of the local government.[969]

d. Donors

There are several countries, organizations, private entities and individuals trying to contribute to the efforts on the mine clearance and other landmine related problems. Some of the several sources are:[970] international aid funds, in-kind support from international aid donors, direct host government support and funding, indirect host government funding, other wealthy donor governments, The United Nations or other international organizations, in some cases from benefactors and philanthropists. Moreover, the contractors and NGOs conducting the de-mining sometimes find their own funds themselves in some programs. The problem about fund raising is that that there is no guarantee that the donors will keep donating the money with the same amount or for the same purpose. For example, the European Union announced the suspension of mine clearance funding of Angola in October 1999 due to the continued use of landmines in the country.[971]

As mentioned in Chapter Three, preferences of the donor as to for whom and how the funds will be allocated is volatile. For example, Canada, Germany and the Netherlands clearly identify their preferences prior to fund allocation.[972] Sometimes these donors stops their contributions without any particular reason even in the middle of

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967 Horwood, *Mine Action: The First Decade of a New Sector,* 20.
968 Reclaiming the Fields of War: Mainstreaming Mine Action in Development, 11.

969 Horwood, *Mine Action: The First Decade of a New Sector,* 20.
970 Trevelyan, "The Mine Action Process."

971 Andrea E Ostheimer, *Aid agencies: providers of essential resources?,* 124, Website, http://www.iss.co.za/Books/Angola/7Ostheimer.pdf (accessed 1 October 2007).

972 Land Mine Monitor 2006 Report.

ongoing de-mining operations. Political concerns and mutual relations with the affected country also affect the structure, activity type or period of the financial contribution.

Donors sometimes become reluctant to make contribution[973] due to the ongoing conflicts in the vicinity of operations. Sometimes, a donor's initial interest fades away if the affected country has not agreed to Land Mine Ban Treaty.

e. De-miners

De-miners are the actual players in clearance operations who face the real threat of unforgiving killers buried underground. The work being carried out requires the highest concentration and caution, and sometimes high-level technical knowledge. Besides, de-miners have to have protective equipment while conducting their jobs, which is disregarded in most of the cases either due to the financial constraints of the de-mining organization (local organizations) or because of the ignorance of unsupervised local de-miners.

As mentioned before, some locals volunteer to join the mine clearance due to their financial constraints, poverty and the desperation of their situation, and their desire to get rid of the problem as soon as possible. Only a few of the locally employed de-miners are retired military personnel who find it difficult to secure other employment after conflict has finished.[974] In some cases, de-mining organizations or commercial de-mining firms hire retired engineering unit members of the former conflicting parties. These employees know exactly where the mines are and their real quantities and types. In a sense, they remove or destroy the mines they laid themselves. Although it seems unethical to use those people, the results showed very high efficiency rates regardless of the ethical considerations.

Because of the well known nature of the landmines and UXOs, the detection, removal, and rendering-safe procedures for mines and UXOs are both difficult and dangerous. The safety of personnel and the people surrounding them depends on the

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[973] *A Global Report of NSA Mine Action*, (Geneva: Geneva Call, 2006), 34, Website http://www.genevacall.org/news/testi-press-releases/gc-16nov2006-nsanews.htm (accessed 1 October 2007).

[974] Bob French, "The business of land-mine clearing," *The Economics of Peace and Security Journal* Vol. 1, No. 2 (2006), 56, http://www.epsjournal.org.uk/pdfs/eps_v1n2_french.pdf (accessed 17 November 2007).

technical knowledge of the procedures, competence, training and operating procedures of the workforce, as well as the working environment. Standards, such as International Mine Action Standards (IMAS), Standing Operational Procedures (SOPs) and other EOD procedures/safety measures need to be considered from the preparation for the operational phase through to complete clearance. Due to the uncertainty involved and the potential risks of working with explosive material, de-miners are all insured by personal accident insurance.[975]

f. NGOs

These organizations struggle for the good of the people suffering from landmines by helping them to get rid of the landmines and UXOs; they carry out surveys, conduct MRE work through out the countries' settlements and the refugee camps where people flee and find safe heavens, coordinate the fund raising activities in and out of the contaminated country, train the local people on dealing with the clearance and mine awareness and collect the necessary data needed for the actual players in the mine clearance operations.

NGOs also do their best to attract the attention of wealthy governments, the U.N. and international donors to contribute to the efforts (especially by making financial contributions) when there is inadequate interest or lack of understanding of the nature and scope of the problem. In the early stages of the war against landmines, before U.N. agencies assumed their responsibilities in the sector, and before significant openings were available for commercial agencies, NGOs were the dominant force pushing donors, the U.N. and public awareness to face the full impact of landmines.[976] NGOs also support the efforts towards the integrated mine action (mine clearance with mine awareness and community-based priorities. Reducing the effects of landmines while simultaneously contributing to the social and economical development.[977]) long before it became official

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975 *A Guide to Insurance for Mine Action Operators*, (Geneva:GICHD, May 2004), 5, Website, http://www.gichd.org/fileadmin/pdf/publications/Insurance_Guide_for_Mine_Action.pdf (accessed 17 November 2007).

976 Horwood , *Humanitarian Mine Action,* 9.

977 Sally Campbell Thorpe, *Integrated Mine Action: Lessons and Recommendations from Austcare's Program in Cambodia*, January 2007, 3, Website http://www.austcare.org.au/media/19715/cambodialmalessonslearned.pdf (accessed 17 November 2007).

rhetoric and policy.[978] NGOs—and particularly international NGOs—are the most prominent implementers and are represented in all major mine-affected countries. When compared to other types of major players, NGOs have a definite advantage of flexibility and innovativeness.[979]

g. Commercial Firms

Although the use of commercial firms as the primary, rather than backup, mechanism to fight the landmine problem was criticized severely by the international humanitarian community at the beginning, its use is now unavoidable due to the gap between the existing military capacity and the actual need. Using private companies is an effective way to assist both the countries being affected and the organizations assisting those countries. Smith quotes from[980] Stephen Fidler and Thomas Catan ("Private Military Companies Pursue the Peace Dividend with Armed Forces Stretched, Governments Face Hard Lobbying." Financial Times. 24 July 2003) the words of former U.N. Secretary General Kofi Annan on the topic:

> Kofi Annan, U.N. secretary-general, said in 1998 that he considered using a private company to keep fighters and refugees apart in the Rwanda crisis. But he concluded: "The world may not be ready to privatize peace." It may be readier now. Peter Singer of the Brookings Institution, an expert on PMCs, says there is discussion in the Bush administration, and particularly the Pentagon, about using such companies. It is being driven by concerns about the US army: half of its 33 active divisions are in Iraq, while it is also committed in Afghanistan, South Korea, Kosovo and elsewhere.

As there are only a few competent commercial firms operating in the industry, their effectiveness depends on the number of contracts awarded and the required tasks in the contract. But the current high humanitarian de-mining demand brings about a new challenge to the commercial de-mining firms: the difficulty of having qualified personnel and adequate capacity for wide scale operations under tight schedules. The situation has changed significantly following the lucrative de-mining contracts awarded by Kuwait after the 1991 Gulf War. Due to the unbalanced supply and demand situation

978 Horwood, *Humanitarian Mine Action,* 18.

979 *Reclaiming the Fields of War*, 11

980 Richard Victor Smith, *Can Private Military Companies replace Special Operational Forces?* MA Candidate War Studies Program, Royal Military College of Canada, 14, Website http://www.cda-cdai.ca/symposia/2004/Smith,%20Richard-%20Paper.pdf (accessed 16 November 2007).

and forecasts of potentially high profits, commercial companies realized the necessity of their readiness for any contract in any part of the world and having qualified staff in order to be competitive and lucrative in the industry. Following the successful de-mining experience gained from the clearance of the Gulf, commercial firms adapted themselves well to the potential contracts, gained valuable experience in operations management, retained qualified staff with experience, acquired specialized clearance equipment and employed well trained MDD teams. As the donor base got larger, the market share of the commercial firms in mine clearance industry increased as well.[981] This new option for the donor governments and agencies has been very useful in that they could ensure their requirements be fulfilled in the way they want it, where and when they want it. Having a backup contract option would also give the donors a very dependable tool providing flexibility to use in case of any kind of unexpected and emergency problem. As the contractors perform their scheduled work, donors do not need to worry about the end result or the potential difficulties they might encounter halfway through, which reassures the donors affected community. This means that sponsors of the programs no longer need worry if the program will be finished and the area will be cleared (as in the case of NGOs' performance of operations) due to the terms and conditions of the contracts.

The total cost of the contracts for de-mining operations vary depending on the country, terrain, climate, commercial clearance, NGO involved, risks foreseen, status of the conflict, urgency of the operation, and cooperation status of the local people. Cost of de-mining per square meter can vary from US$2 to US$39.[982] Besides, methods used for de-mining can add up to the total cost of the contract. For example, use of mechanical de-mining equipment or mine detection dogs increases the cost significantly at the beginning of the program because of the fixed cost. Although it does not provide an optimum solution for the contractor due to its high initial investment costs, the high level of technology used helps to fulfill the obligations in comparatively shorter periods, which in turn lessens the costs incurred.[983] If the overall cost is taken into consideration until the end of the contract, it will be almost the same cost since the manual de-mining will

[981] Horwood, Humanitarian Mine Action, 9.

[982] French, "The business of land-mine clearing," 54.

[983] Identifying Synergies between Mine Action and Small Arms and Light Weapons, 116.

take a lot longer than the other methods. Moreover, if either the extent or duration of the contract is more than average, then variable costs will be less, thus ensuring the maximum profit out of these assets.

Due to the fact that most of commercial de-mining companies have their home governments' support, this reality represents a form of 'tied aid,' despite the competitive bidding procedures. Most of the major companies in the industry originate from the U.S., the UK and South Africa. None of these companies had a prior history of involvement in humanitarian operations. On the contrary, in some cases it is well known that certain of these commercial companies were, before the 1990s, directly involved in mine development, 'special forces' operations, or mercenary activities.[984] For these companies, the mine contamination issue might be considered as double dipping. Some examples follow:

In 1988 a company called CMS (the largest ordnance-clearing company in the U.S., making an annual profit of $160 million as of 2001)[985] started developing mines for the U.S. military, but after the Gulf War became a U.S. contractor that specialized in explosive ordnance disposal. The company was paid by the government of Kuwait to clear unexploded ordnance from one of seven sectors of the battlefield in Kuwait.[986] This company also has been awarded other munitions clearance tasks by the U.S. government.[987]

Another example is the British company Royal which was awarded a contract to clear mines after the Gulf War. A contract awarded for $90 million requested the company to clear munitions including the L-9 bar mine that was built by Royal

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984 Horwood, Humanitarian Mine Action: The First Decade of a New Sector in Humanitarian Aid, 20.

985 "The big, booming business of wars," *Times of India*, 1 October 2001, Website, http://timesofindia.indiatimes.com/articleshow/732749156.cms (accessed 15 November 2007).

986 GAO Report, GAO-02-1003 U.S. Use of Land Mines in the Persian Gulf War, 24 Website, http://www.gao.gov/new.items/d021003.pdf (accessed 15 November 2007).

987 U.S. Department of State Website, http://www.defenselink.mil/contracts/contract.aspx?contractid=812, (accessed 15 November 2007).

Ordnance.[988] While Royal Ordnance was winning clearance contracts in Kuwait and later in Mozambique, its parent company British Aerospace was still selling other munitions across the world.[989]

At the same time, after the end of Gulf War the French company Sofremi, awarded a $110 million de-mining contract by Kuwait, kept selling the weapons of war throughout the world.[990]

While MECHEM has won multi-million-dollar contracts for the clearing of mines in Mozambique and Angola, company is the research and development wing of Denel, the government-owned arms-manufacturing company who has helped design landmines for the South African Defense Force in the past.[991]

ICBL recommends in its Ethics and Justice Working Group Report that criterion for mine action be avoiding "double dipping" situations, where those involved in production and export of landmines also profit from de-mining.[992]

While mine action NGOs working within communities might adapt and enlarge their scope and clearance priorities according to what they learn from the communities, contractual clauses hinder the contractor from deviating from the contract whatever happens during de-mining operations, unless contract is modified by the sides, which is rare.

Both NGOs and de-mining companies must have the following skills to be able to conduct effective international operations:[993]

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988 "The big, booming business of wars."

989 Paul Donovan, *New Internationalist*, September 1997, http://www.newint.org/issue294/killing.html (accessed 15 November 2007).

990 Eduardo Galeano, *Upside Down: A Primer for the Looking-Glass World* (New York: Picador, 2001), 192.

991 Donovan, *New Internationalist*.

992 Ethics and Justice Working Group Report of Landmine Monitor, Website, http://www.icbl.org/lm/2000/icbl/ethics.html#fnB4780 (accessed 15 November 2007).

993 *A Study of Manual Mine Clearance,* (Geneva, GICHD, August 2005), 11, Website http://www.gichd.org/fileadmin/pdf/publications/Manual_Mine_Clearance_Book2.pdf (accessed 19 November 2007).

- Good understanding of international law, international politics, local employment law, health and safety issues, local culture and environmental knowledge.
- Safety and Protective measure in hazardous environments.
- Modern equipment procurement.
- Communications equipment, VHF, HF, etc.
- Logistics, roads, freightage, buildings, travel and accommodation, etc.
- Maintenance, fleet and equipment.
- Technology-advancing techniques for mechanical clearance tasks.
- Animal husbandry and management.
- Training – varied and non-standardized.
- Human resources (total needs for 24-hour care).
- Providing general medical services for the whole staff.
- Emergency responses.
- IT database.
- Detailed data management.
- Risk management.
- Management at all levels, resource planning, etc.
- Financial skills of a general nature.
- International fund-raising and fund management.
- Management when working in hostile environments.
- Project management.
- Senior management – leadership, business skills, strategic decision making, communication, organizational skills.
- Middle management – leadership, business skills, tactical decision making,
- Language skills, teamwork.
- Mapping and survey skills.
- Driving skills.
- Machinery operation and remote operation skills.
- EOD and de-mining skills.

h. Clearance Equipment Manufacturers

Equipment Manufacturers are affected positively from the extent of the clearance operations. The new equipment developed increases the efficiency and the rates of the de-miners due to the new capabilities introduced. Manufacturers have recently been motivated to produce high-tech light protective equipment as well as traditional equipment and flails for wide area reduction tasks. Seeing that the extent of the contamination is beyond the current capacities of the all clearance organization if done manually, the new trend is to use mine clearance equipment as much as possible.

When we compare commercial companies with NGOs, we see the following major differences:

Objective

- Commercial Company: Profit.
- NGO: Assistance to the affected countries.

Planning

- Commercial Company: Thorough and detailed planning, definite end situation and no ambiguity. Well designed performance requirements. The project manager always defines a beginning, middle and end phase by special achievements in order to be able to keep track of the progress and achieve milestones, which in turn deliver payments.
- NGO: Most of the time NGOs prepare their programs in a reactive way, due to the ambiguity of the funds that they are going to receive in the following period. Desired end situation is dependent on the decision makers of the organizations, policy makers and financial status of the program. Loose performance requirements. The main financial concern is if the donors will keep contributing to the project. Because of this NGOs try to prepare their plans to convince the donors that they will carry out something valuable for both mine affected society and the donor.

Dependence on funds[994]

- Commercial Company: Yes. Contracted amount. Financial aspects are almost completely cleared (most of the time -

[994] A Study of Local Organizations in Mine Action, GICHD, Geneva, November 2004, 47, Website http://www.gichd.org/fileadmin/pdf/publications/Local_Organisations.pdf (accessed 18 November 2007).

Firm fixed Price) at the very beginning (except for unexpected requests from contracting agency/organization).

- NGO: Yes. But the amount of funds differ in all phases of the operation depending on the donations, policy changes of the donors, and funds raised during the campaigns.

Competition

- Commercial Company: Low against NGOs, medium against the other commercial firms due to the fairly high demand for all the parties.
- NGO: No competition. NGOs lessens the bargaining power of commercial firms because of their low cost policy (no-profit policy)

Quality of Personnel

- Commercial Company: High. As commercial companies pay much higher wages (most of the time), they place a very strong pressure on the NGOs which have most of the time considerably lower budgets.
- NGO: Medium. Smaller budgets affect NGOs' ability to hire experienced staff negatively. NGOs are mostly dependent upon the local people trained by NGOs.

Capacity building

- Commercial Company: Yes. if contracted for that task.
- NGO: Yes. Capacity-building is viewed as a long-term objective, where the end strategy is for the local population and government to develop the skills. The concept of capacity-building is often cited as the main discriminating factor between NGOs and commercial companies.[995]

Relations with the local community

- Commercial Company: a commercial company's potential weakness is its inability to understand the local politics and develop the networking capability essential to a smooth operation.[996]
- NGO: As most of the time NGOs are perceived as the communities' real supporters due to their non-profit structure, they get more support and volunteers from the community.

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995 *A Study of Manual Mine Clearance*, (Geneva, GICHD, August 2005), 11, Website http://www.gichd.org/fileadmin/pdf/publications/Manual_Mine_Clearance_Book2.pdf (accessed 19 November 2007).

996 Ibid.

2. Industry Analysis

To be able to do an industry analysis, Porter's five forces model can be utilized. Primary forces related to the de-mining industry are examined below.

a. Bargaining Power of Buyers

LOW. As the scarcity of the service providers (commercial firms and other de-mining NGOs) is affecting the general situation in the ongoing efforts, buyers' bargaining power is significantly low. As mentioned before the overall clearance of all landmines on the planet is estimated to take at least ten years. But none of the landmine affected countries have that long time to sit and wait for the next available time. Buyers (sponsors of the programs) will probably use their maximum resources allocated to the project to have the service provided as soon as possible either by commercial de-mining firms or NGOs. To achieve this objective, buyers either have to convince the NGOs, donors or the international organizations to provide the necessary assistance or contribution to begin the de-mining work or use their own domestic financial assets to contract out the clearance of the contaminated areas (provided that the country has no military or domestic capacity to perform the de-mining operations). As most of the affected countries are poor, it is highly unlikely that they can find the necessary financial resources domestically. Buyers are price takers in the current conditions of the global mine clearance market.

b. Bargaining Power of Suppliers

HIGH. Mine clearance industry is a comparatively new segment of the Private Military Industry providing services on demand. It gives them both a disadvantage to find highly experienced people to hire and an advantage to have minimum competition among the competitors. Most of their staff are retired military personnel. There is almost no other way to find qualified staff capable of carrying out de-mining and EOD/IED operations. Due to the shortage of qualified suppliers, these companies can dictate the price almost arbitrarily as the price makers. Companies with the highest experience, more qualified staff and more sophisticated tools and equipment have a considerable advantage against their competitors. Besides, companies having MDD teams and mechanical tools have further advantages compared to their competitors. As for the NGOs performing de-mining operations, they are the price balancing factor for

the industry. Due to their non-profit structure, they carry out the same tasks for much less prices when compared to those of the private de-mining firms.

c. Threat of New Entrant

MEDIUM. As the need for the de-mining services increases day by day, the bargaining power of the firms continues to increase. But, at the same time new firms entering the market begin to risk the older firms' bargaining power in the long term. However, being able to have a strong position in such a volatile market requires a very good background, qualified staff and a most important of all, a positive experience and reputation from the former customers.

d. Rivalry Among Competing Firms in Industry

LOW. As the demand for the de-mining services far exceeds the supply, it is highly unlikely that there will be a competition among the firms operating in the de-mining industry in the short run.

e. Threat of Substitute Products

LOW. There is no other way than doing the actual clearance in the field either by manual methods or by mechanical equipment application. Even if the technology develops in the near future up to a point that remote clearance becomes available, it is impossible to claim that the area will be cleared thoroughly. For a mistake proof procedure of clearance, the manual method is inevitable. These new state-of-the-art technologies may decrease the demand, but cannot change the market priorities for the near future.

VI. CONCLUSION

A. GENERAL

Seeing the problems caused by landmines and the efforts to reach the desired end, a mine-free world, the need for better coordination and an overarching management system has become urgent.

While it is unfair to accuse the organizations who are giving their all against the landmine-related problems, it has to be admitted that the ongoing efforts are unorganized and almost all the individual organizations try to solve the problem with their own ways and their unique approaches.

If the problem is examined from the financial point of view, funding has significant shortfalls and must be corrected in order to meet the needs of clearance organizations.

If the problem is examined from the efficiency point of view, the efforts are significantly disorganized, with high rates of redundancy almost in all areas of activity and in almost every single mine-affected country.

B. PROJECTIONS

To be able to solve the problems, several improvements in almost all efforts against landmines are needed. The projections for improving efficiency in de-mining efforts are as follows:

1. Institutional system that supports de-mining: It is clearly seen that there is a significant lack of coordination among the major players in the de-mining efforts. In almost every organization, the present staff handle the operations internally and do not reveal the insights by exchanging thoughts among the other organizations. Most of the organizations striving for a mine-free world carry out their operations with the utmost diligence, but the other institutions do not know what kind of difficulties have been experienced, how the problems were overcome and which important lessons can be learned from that particular operation.

The overall system requires a comprehensive coordination and information sharing system, which contains a common database having:

- Lessons learned data
- Activity-Method data
- Activity-Time data
- Geography-Time data
- Surface-Rate data
- Statistical comparison data
- Social, ethical, and behavioral data unique to the different geographical areas

This coordination system requires an overarching approach that brings the players together, either with periodical or emergency meetings that in turn will contribute to the most important aspect of the efforts: safety of de-miners and the local people. These meetings will bring about a common consensus, multilateral understanding, and lessons learned from incidents and accidents. Then the takeaways will be gathered and shared with all the stakeholders to contribute to the safety measures and strategic planning procedures, and a valuable set of data will be developed.

Managing coordination of all mine clearance operations globally is not only a complex issue but a challenging one, taking the financial and work force capacity of any organization into consideration. To solve at least the work force section of this big puzzle, all the organizations included in active clearance operations should be asked to help establish a kind of multinational training facility, operated under U.N. authority, by contributing a specific amount of highly qualified personnel with the required skills and experience. In addition, these organizations should be obligated to report to the academic management of this training facility whenever any significant development comes about. Alternatively, even if no significant development occurs, after the completion of the clearance operation they should report statistics, types of minds encountered, clearance or Render Safe Procedures (RSP), the rates of clearance, incidents/accidents (if any), geographical difficulties experienced, and effects on sociological structure in the area.

2. Effective funds coordination/allocation: Fair funding distribution—first to the affected communities then to the contractors—is one of the missing rings in

the chain of effective financial assistance. If we closely scrutinize some of the countries receiving international funds, we definitely realize a kind of discrimination among them. For example, although being in the same region, the government of Lebanon receives significantly more donations than that of Jordan. However, this freedom of contribution helps some governments (which normally never provide any open funds that could be used for some specific countries having hostilities in the past) to contribute to the decontamination of specific countries, freeing the other funds to be available for other countries desperately in need of help. The global mine action funding system needs to have an overall coordination mechanism by which non-earmarked donations can be coordinated among the affected countries, taking into consideration their contamination level and amount of contribution that they have been receiving up to that time. The first measure taken should be classifying the financial support by different organizations, depending on the structure of the support. Since the system mostly depends on voluntary donations, countries and donors have rights to determine where their contributions should be spent. Sometimes donors ask that their money be spent on specific projects or for specific countries. In this case, the only available coordination will be allocating funds to the other countries that cannot get adequate financial support from contributors. The other case is that the donors can let the international mine action coordination authorities decide where to use their contributions. The U.N., taking their global efforts, experience, and respected international status into consideration, can most likely take on responsibility and establish this coordination mechanism. The proposed organization of such an organization is as follows:

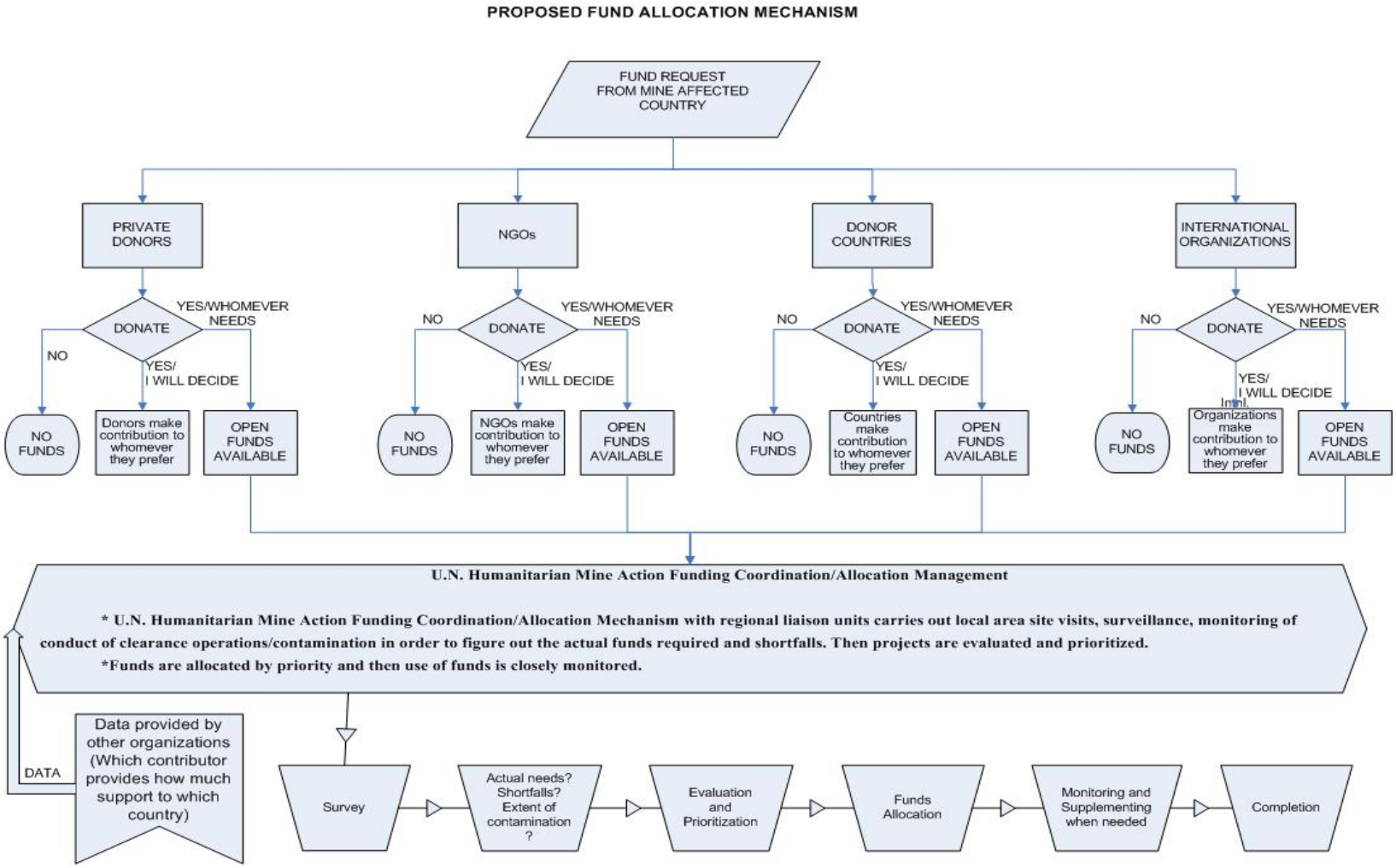
PROPOSED FUND ALLOCATION MECHANISM
FUND REQUEST FROM MINE AFFECTED COUNTRY
PRIVATE DONORS
NGOs
DONOR COUNTRIES
INTERNATIONAL ORGANIZATIONS
DONATE
YES/WHOMEVER NEEDS
NO
YES/ I WILL DECIDE
NO FUNDS
Donors make contribution to whomever they prefer
OPEN FUNDS AVAILABLE
NGOs make contribution to whomever they prefer
Countries make contribution to whomever they prefer
Intnl. Organizations make contribution to whomever they prefer
U.N. Humanitarian Mine Action Funding Coordination/Allocation Management
* U.N. Humanitarian Mine Action Funding Coordination/Allocation Mechanism with regional liaison units carries out local area site visits, surveillance, monitoring of conduct of clearance operations/contamination in order to figure out the actual funds required and shortfalls. Then projects are evaluated and prioritized.
*Funds are allocated by priority and then use of funds is closely monitored.
DATA
Data provided by other organizations (Which contributor provides how much support to which country)
Survey
Actual needs? Shortfalls? Extent of contamination ?
Evaluation and Prioritization
Funds Allocation
Monitoring and Supplementing when needed
Completion

Figure 12. Proposed Fund Allocation Mechanism

3. Consideration of Efficiencies: Another option to contribute to the effectiveness of the global mine action funding is taking the efficiencies of the organizations dealing with mine clearance activities into consideration during the solicitation phase of each clearance program. This new approach will significantly change the financial expectations of organizations dealing with landmine clearance (both NGOs and Commercial Firms). The clearance organizations will most likely be trying to optimize their clearance operations with respect to their effectiveness by achieving better results in rate of civilian casualties, number of de-miner harmed, rate of clearance, and technical adequacy. In order to be competent in the market, all the organizations including de-mining NGOs should improve their financial figures (mostly by taking the costs down by effective measures). On the other hand, the sponsors of programs should take learning curves (also known as experience curves, or cost improvement curves) into consideration. Because, each time a clearance organization conducts de-mining in the same/similar area, it deals with similar kinds of mines and UXOs, gets familiar with the risks involved unique to the area, and adapts easier to the geographical conditions; then, its experience and the resulting progress improves considerably, which in turn lowers the cost of clearance. This fact brings about another approach for the contracting agencies to develop a new strategy to favor companies with more experience in the same/similar area and same/similar types of mines and UXOs. This new approach will then motivate companies to get experienced in different segments of the de-mining industry, which in turn will lead to a more professional service industry, namely a niche, for similar types of geographical areas, climatic conditions or similar types of mines and UXOs. At the end, this will provide considerable savings for the overall efforts against landmine contamination.

Although the cost of clearing a mine is very high at the beginning, it gets less in the following phases of the clearance. However, after a point, when only a few mines remain, it again gets more expensive to clear the remaining mines. In order to overcome this difficulty, prioritization of clearance operations should be meticulously conducted and then operations on unimportant (i.e., no immediate threat to locals) pieces of lands should be put on hold after appropriate marking, fencing, and guarding of the fields.

After the overall contamination situation and risks associated in the immediate vicinity of the local people is over, specialized units having state of the art equipment should later clear these contaminated areas one by one.

4. Retaining Donors: Another important issue to be taken care of is maintaining the donation flow at least as much as before. In order to retain the interest of donors for longer periods, mine action coordination and implementation organizations should justify their expenditures as to where the funds are spent, how beneficial the operations conducted are for the local people and the government(s) involved and how the rate of casualty improves as the clearance operations progress.

This can be realized by: organizing site visits to the actual operation areas, carrying out intense advertisement campaigns by using all the available media means, realizing proactive data collection, and periodical explanatory briefings. Although the U.N. is again the most probable body to realize these tasks, the host nation governments should always be actively included and asked to join to the efforts in order to justify the actual situation in the area.

5. **Investment:** As mentioned before, one way of reducing the price is making investment in mechanical and other high tech de-mining tools/equipment. Although mechanical de-mining operations used to be conducted by converted armored military vehicles (with the sole purpose of clearing a safe and usable path across the minefields), which were clumsy, hard to maintain and to operate in specific landscapes, the situation has changed after the development of machines of varying uses, sizes, and armor protection capability. Moreover, some other versatile vehicles capable of operating for multiple tasks can be developed. This new type of high tech vehicle will significantly decrease the time spent on actual clearance, and increase the efficiency and self-confidence of the de-miners due to the decreased vulnerability.

If we break down all the costs associated with mine clearance, we see that there are several line items consisting of salaries and allowances of staff, consumables, medical needs, MDD expenditures, transportation expenditures, supply, and maintenance of equipment and tools, management and administration costs. Although initial investment

for the Research & Development efforts will be considerably higher than overall investment of several years' operations, in the long run the rate of return will be a lot higher, taking into account the time and money that will be spent in the following decades of clearance tasks. Supposing that time is among the most important aspects of clearance operations due to the risks, the increased efficiency and decreased operation times associated with the use of mechanical de-mining tools will contribute an invaluable asset to the clearance units.

C. SUGGESTIONS FOR FUTURE RESEARCH

Researchers in the mine clearance industry field usually begin work without comprehensive information on the industry. Therefore, it is vital that researchers begin with a thorough study about where and how mine clearance happens, who deals with what kind of activities and the constraints associated with the landmine contamination. To be able to comprehend the whole problem, a thorough literature review and contacts with the mine clearance organizations are essential to have a broader insight on the problem. Since carrying out an independent study is extremely overwhelming on this particular topic, it is highly recommended that a wide group of organized researchers form a research group and get into the details of the topic.

Followings are some of the suggested research topics in the mine clearance industry:

- First, an advanced analysis to define the resources, capabilities, and subspecialties of the industry is required.
- Second, related to the first suggestion, it is essential that an analysis of the financial constraints experienced by both the mine-affected countries and the organizations dealing with the contamination problem be carried out.
- Third, it will be useful to learn the reasons behind why the commercial mine clearance firms are interested in this sector and try to answer if one goal is to cover their other ethically questioned businesses (private military army, etc.).
- Fourth, the mechanical clearance equipment producers' industry should also be incorporated into the broad analysis.
- Fifth, effects of the local employment by the de-mining companies and NGOs to the local economies should be analyzed.

- Benefits of clearance of fertile areas and re-utilization of the funds gained from cleared areas for the clearance of the other mined areas should be analyzed.

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